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SSC CGL 2026
MATHS

$x^2+y^2=z^2$ $(a+b)^2$ %

$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$

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MATHS CHAPTERWISE

53 Shifts · 1325 PYQs · Tips & Tricks · Solutions

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CHAPTER 01

Number System, LCM & HCF

Divisibility · Remainders · Recurring Decimals · Squares · LCM/HCF

49	2	2	6
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Number System, LCM & HCF

01 Divisibility के नियम
3/9 → अंकों का योग; 4 → अंतिम दो अंक; 8 → अंतिम तीन अंक; 11 → (विषम स्थान - सम स्थान) = 0 या 11 का गुणज; 72 = 8 × 9 दोनों जाँचें।

02 abcabc रूप
6-अंकीय abcabc हमेशा 1001 = 7 × 11 × 13 से विभाज्य होती है।

03 आवर्ती दशमलव
0.a$\bar{b}$ = ab/99; 0.a$\bar{bc}$ (mixed) = (abc - ab)/900 — recurring अंकों जितने 9, non-recurring जितने 0।

04 क्रमागत संख्याओं के वर्ग
$(n+1)^2 - n^2 = 2n + 1$; क्रमागत सम/विषम: $(n+2)^2 - n^2 = 4n + 4$।

05 Perfect square बनाना
LCM का prime factorisation करें, जिन primes की घात विषम है उनसे गुणा करें।

06 गुणज गिनना
a से b तक k के गुणज = ⌊b/k⌋ - ⌊(a-1)/k⌋; दोनों से विभाज्य = LCM के गुणज।

Mock Set 01 Q1–Q25 · 1 Oct → 22 Oct

TOPIC · Number System (1/2)

Q1 Which of the following numbers is NOT divisible by 3?
SSC CGL 2026 · 1 Oct 2026 · Shift-1
(a) 98763 (b) 10002 (c) 55554 (d) 71203

Q2 How many numbers from 50 to 1000 are divisible by 11?
SSC CGL 2026 · 1 Oct 2026 · Shift-1
(a) 75 (b) 86 (c) 65 (d) 96

Q3 Which of the following numbers is divisible by 3?
SSC CGL 2026 · 1 Oct 2026 · Shift-2
(a) 45671 (b) 58214 (c) 67215 (d) 89102

Q4 If $\sqrt{7^n} = 343$, then the value of n is:
SSC CGL 2026 · 6 Oct 2026 · Shift-2
(a) 3 (b) 8 (c) 6 (d) 5

Q5 If the 6-digit number 5z3x4y is divisible by 7, 11, and 13, find the value of (x + y - z).
SSC CGL 2026 · 6 Oct 2026 · Shift-2
(a) 3 (b) 2 (c) 1 (d) 4

Q6 How many prime numbers p exist such that 120 < p < 150?
SSC CGL 2026 · 6 Oct 2026 · Shift-2
(a) 4 (b) 7 (c) 5 (d) 6

Q7 Express the recurring decimal 0.41$\bar{6}$ (i.e., 0.41666...) as a fraction in its lowest terms.
SSC CGL 2026 · 6 Oct 2026 · Shift-2
(a) $\frac{41}{99}$ (b) $\frac{5}{12}$ (c) $\frac{41}{90}$ (d) $\frac{41}{100}$

Q8 When a whole number x is added to 2026 and the same number x is subtracted from 2026, what is the sum of the two numbers so obtained?
SSC CGL 2026 · 7 Oct 2026 · Shift-1
(a) 1452 (b) 4052 (c) 3564 (d) 2458

Q9 If the 6-digit number 11a7b2 is divisible by 72, what is the maximum value of (2a+3b)?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 28 (b) 38 (c) 45 (d) 41

Q10 Let $N = 2^3 \times 3^2 \times 5^4 \times 7$. What is the smallest positive integer k such that $N \times k$ is a perfect square?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 6 (b) 7 (c) 14 (d) 35

Q11 The ratio between the tens digit and the units digit of a two-digit number is 2:1. If the original number is 18 more than the number obtained by reversing the digits, find the original number.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 28 (b) 42 (c) 54 (d) 35

Q12 The difference between the squares of two consecutive positive integers is 47. What is the smaller integer?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 23 (b) 25 (c) 35 (d) 41

Q13 Find the value of (x + y) if 5x2y1 is divisible by 3 and x and y are the same digit.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 4 (b) 8 (c) 36 (d) 34

Q14 Find the value of $0.4\overline{7} + 0.5\overline{8}$.

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) $1.0\overline{5}$ (b) $2.06\overline{5}$ (c) $1.0\overline{6}$ (d) $\overline{2.06}$

Q15 Find the value of x + y if the number 985x3678y is divisible by 72.

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 5 (b) 12 (c) 9 (d) 8

Q16 The difference between the squares of two consecutive even numbers is 84. Find the square root of their sum.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $\sqrt{20}$ (b) $\sqrt{22}$ (c) $\sqrt{42}$ (d) $\sqrt{45}$

Q17 If $x = 0.1\overline{2}$ and $y = 0.\overline{12}$, find the value of x + y.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) $\frac{1}{9}$ (b) $\frac{241}{990}$ (c) $\frac{23}{99}$ (d) $\frac{71}{297}$

Q18 If a 6-digit number 4x57y2 is divisible by 72, then what is the value of (x + y)?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 8 (b) 9 (c) 10 (d) 7

Q19 If a nine-digit number 489x6378y is divisible by 72, then the value of $\sqrt{8x + 6y}$ will be:

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 8 (b) 4 (c) 6 (d) 2

Q20 What is the difference between the squares of the consecutive numbers 51 and 50?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 99 (b) 100 (c) 101 (d) 111

Q21 When a number is divided by 3, it gives a remainder of 2. Additionally, when the resulting quotient is divided by 7, the remainder is 5. What will the remainder be when the original number is divided by 21?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 13 (b) 17 (c) 18 (d) 19

Q22 The decimal expansion of a real number is eventually periodic if and only if the number is:

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) Irrational (b) Algebraic
(c) Rational (d) Transcendental

Q23 Which of the following is the correct fractional representation of the recurring decimal $0.12\overline{3}$?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) $\frac{111}{990}$ (b) $\frac{123}{999}$ (c) $\frac{41}{333}$ (d) $\frac{37}{300}$

Q24 The digits of a two-digit number have a ratio of 2 : 3, and when the digits are swapped, the resulting number is 27 greater than the original number. What is the original number?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 46 (b) 69 (c) 22 (d) 14

Q25 If the 6-digit number 5z3x4y is divisible by 7, 11, and 13, then what is the value of (x + y − z)?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 1 (b) 2 (c) 8 (d) 4

ANSWER KEY · Mock Set 01				
1 (d)	2 (b)	3 (c)	4 (c)	5 (d)
6 (c)	7 (b)	8 (b)	9 (d)	10 (c)
11 (b)	12 (a)	13 (a)	14 (c)	15 (d)
16 (c)	17 (b)	18 (b)	19 (a)	20 (c)
21 (b)	22 (c)	23 (d)	24 (b)	25 (d)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (d)**

71203

3 से divisibility के लिए अंकों का योग 3 से विभाज्य होना चाहिए। 71203 के अंकों का योग 7+1+2+0+3 = 13 है, जो 3 से विभाज्य नहीं है। (बाकी: 33, 3, 24 — सभी 3 के गुणज।)

Q2 **Ans (b)**

86

50 से 1000 तक 11 का पहला गुणज 55 = 11×5 और आख़िरी 990 = 11×90 है। संख्या = 90 - 5 + 1 = **86**।

Q3 **Ans (c)**

67215

67215 के अंकों का योग 6+7+2+1+5 = 21 है, जो 3 से विभाज्य है। बाकी के योग 23, 20, 20 हैं।

Q4 **Ans (c)**

6

$\sqrt{(7^n)} = 7^{\wedge}(n/2)$ और $343 = 7^3$। इसलिए $n/2 = 3 \Rightarrow$ **n = 6**।

Q5 **Ans (d)**

4

7 × 11 × 13 = 1001, और 1001 से विभाज्य 6-अंकीय संख्या abcabc रूप की होती है। 5z3x4y में (5,z,3) = (x,4,y) ⇒ x = 5, z = 4, y = 3।
x + y - z = 5 + 3 - 4 = **4**।

Q6 **Ans (c)**

5

120 और 150 के बीच अभाज्य संख्याएँ: 127, 131, 137, 139, 149 → कुल **5**।

Q7 **Ans (b)**

$\frac{5}{12}$

0.41666... = (416 - 41)/900 = 375/900 = **5/12**।

▸ Mixed recurring decimal: (पूरी संख्या - non-recurring भाग) / (recurring अंकों जितने 9 और non-recurring अंकों जितने 0)।

Q8 **Ans (b)**

4052

(2026 + x) + (2026 - x) = 2 × 2026 = **4052** (x कट जाता है)।

Q9 **Ans (d)**

41

72 = 8 × 9। **8 से:** 7b2 को 8 से विभाज्य होना चाहिए ⇒ 712, 752, 792 ⇒ b = 1, 5, 9।
9 से: अंकों का योग 11 + a + b, जो 9 से विभाज्य हो ⇒ a + b = 7 या 16।
जोड़े: (a,b) = (6,1), (2,5), (7,9)।
2a + 3b के मान: 15, 19, 41 ⇒ अधिकतम **41**।

Q10 **Ans (c)**

14

$N = 2^3 \times 3^2 \times 5^4 \times 7$ में 2 और 7 की घात विषम है। Perfect square बनाने के लिए k = 2 × 7 = **14**।

Q11 **Ans (b)**

42

दहाई = 2k, इकाई = k ⇒ संख्या = 21k, उलटी संख्या = 12k। 21k - 12k = 9k = 18 ⇒ k = 2 ⇒ संख्या **42**।

Q12 **Ans (a)**

23

$(n+1)^2 - n^2 = 2n + 1 = 47 \Rightarrow$ **n = 23**।

Q13 **Ans (a)**

4

अंकों का योग 5 + x + 2 + x + 1 = 8 + 2x, जो 3 से विभाज्य हो ⇒ x = 2, 5, 8। x + y = 2x = 4, 10, 16। विकल्पों में **4** है।

Q14 **Ans (c)**

$1.0\overline{6}$

$0.4\overline{7} = (47 - 4)/90 = 43/90$ और $0.5\overline{8} = (58 - 5)/90 = 53/90$।
योग = 96/90 = 1.0666... = **$1.0\overline{6}$**।

Q15 **Ans (d)**

8

8 से: 78y को 8 से विभाज्य होना चाहिए ⇒ 784 ⇒ y = 4।
9 से: 9+8+5+x+3+6+7+8+4 = 50 + x ⇒ x = 4। x + y = **8**।

Q16 **Ans (c)**

$\sqrt{42}$

$(n+2)^2 - n^2 = 4n + 4 = 84 \Rightarrow n = 20$। संख्याएँ 20 और 22, योग 42 ⇒ वर्गमूल **$\sqrt{42}$**।

Q17 **Ans (b)**

$\frac{241}{990}$

$x = 0.12\overline{1} = (12 - 1)/90 = 11/90$; $y = 0.1\overline{21} = 12/99 = 4/33$।
$x + y = 121/990 + 120/990 =$ **241/990**।

Q18 **Ans (b)**

9

8 से: 7y2 ⇒ 712, 752, 792 ⇒ y ∈ {1, 5, 9}। **9 से:** 4+x+5+7+y+2 = 18 + x + y ⇒ x + y = 9 या 18। विकल्पों में **9** है।

Q19 **Ans (a)**

8

8 से: 78y ⇒ 784 ⇒ y = 4। **9 से:** 4+8+9+x+6+3+7+8+4 = 49 + x ⇒ x = 5।
√(8x + 6y) = √(40 + 24) = √64 = **8**।

Q20 **Ans (c)**

101

$51^2 - 50^2 = (51 - 50)(51 + 50) =$ **101**।

Q21 **Ans (b)**

17

N = 3q + 2 और q = 7k + 5 ⇒ N = 3(7k + 5) + 2 = 21k + 17। शेषफल = **17**।

Q22 **Ans (c)**

Rational

जिस संख्या का दशमलव प्रसार सांत (terminating) या आवर्ती (repeating) हो, वह **Rational** होती है। इसका उल्टा भी सत्य है।

Q23 **Ans (d)**

$\frac{37}{300}$

$0.12\overline{3} = (123 - 12)/900 = 111/900 =$ **37/300**।

Q24 **Ans (b)**

69

अंक 2k और 3k ⇒ संख्या = 23k, उलटी = 32k। अंतर 9k = 27 ⇒ k = 3 ⇒ संख्या **69**।

Q25 **Ans (d)**

4

1001 = 7 × 11 × 13 से विभाज्य होने के लिए 5z3x4y = abcabc रूप ⇒ x = 5, z = 4, y = 3।
x + y − z = **4**।

Mock Set 02 Q26–Q49 · 6 Oct → 28 Oct

TOPIC · Number System (2/2)

Q26 **Which of the following numbers is divisible by 11 and also a perfect square?**

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 1936 (b) 2025 (c) 2401 (d) 2809

Q27 **The value of $\sqrt{2} + \sqrt{8}$ is:**

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) Rational (b) Irrational
(c) Integer (d) Whole number

Q28 **The decimal 0.333.. (with 3 repeating) can be written as which fraction?**

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 3/10 (b) 1/3 (c) 3/12 (d) 1/9

Q29 **Which of these is TRUE about the decimal expansion of √5?**

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) Terminating (b) Repeating
(c) Non-terminating, repeating (d) Non-terminating, non-repeating

Q30 **Find the remainder when $10^1 + 10^2 + 10^3 + ... + 10^{100}$ is divided by 6.**

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 3 (b) 2 (c) 8 (d) 4

Q31 **If the ratio of the units digit to the tens digit of a two-digit number is 3:1. The sum of the digits is 8. What is the original number?**

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 18 (b) 32 (c) 45 (d) 26

Q32 **The difference between the squares of two consecutive odd numbers is 128. What is the square root of their sum?**

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 6 (b) 8 (c) 10 (d) 12

Q33 **If $\sqrt{6^n} = 216$, then the value of n is:**

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 9 (b) 6 (c) 3 (d) 4

Q34 How many pairs of (x, y) are possible such that the number 763x4y2 is divisible by 9?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 15 pairs (b) 18 pairs (c) 12 pairs (d) 11 pairs

Q35 What is the sum of all prime numbers between 20 and 35?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 74 (b) 83 (c) 92 (d) 65

Q36 If the 6-digit number 15x1y2 is divisible by 44, then find the value of (x + y).

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 8 (b) 7 (c) 6 (d) 9

Q37 A student claims that √8 + √18 = √26. Which of the following explains why the claim is incorrect?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) Square roots cannot be added.
(b) √a + √b ≠ √(a + b) in general.
(c) √8 is rational.
(d) √18 is rational.

Q38 Which of the following decimals represents the fraction 11/20?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 0.55 (b) 0.65 (c) 0.75 (d) 0.45

Q39 If √a + √b = √c + √d, where a, b, c, and d are distinct prime numbers, which of the following statements must be true?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) The primes a, b, c, and d must be in arithmetic progression.
(b) a + b = c + d and ab = cd.
(c) No four distinct prime numbers can satisfy this equation.
(d) Infinitely many combinations of such distinct primes exist.

Q40 If the number 483x7 is divisible by 3, what is the smallest possible value for x?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 1 (b) 0 (c) 2 (d) 3

Q41 How many numbers between 100 and 400 are divisible by 13?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 56 (b) 23 (c) 45 (d) 65

Q42 The square of a two-digit number has 6 at its unit place. How many possible values exist for the unit digit of the square root of that square?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 1 (b) 2 (c) 3 (d) 4

TOPIC · LCM and HCF

Q43 Find the smallest perfect square divisible by 10, 12, 15, and 18.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 600 (b) 900 (c) 500 (d) 400

Q44 Find the least perfect square divisible by 3, 4, 5, 6, and 8.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 3800 (b) 3600 (c) 4600 (d) 4200

Q45 Find the smallest square number that is divisible by each of the numbers 4, 9, and 10.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 500 (b) 900 (c) 600 (d) 700

Q46 What is the smallest number that is a perfect square and is also divisible by 6, 15, and 20?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 700 (b) 900 (c) 600 (d) 800

Q47 Determine the number of integers between 200 and 600 that are divisible by both 5 and 7.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 10 (b) 11 (c) 12 (d) 13

Q48 How many numbers are there from 100 to 300 which are divisible by both 4 and 6?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 16 (b) 17 (c) 18 (d) 20

Q49 Determine the number of integers between 1 and 500 that are divisible by 3, 4, and 5.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 7 (b) 8 (c) 9 (d) 10

ANSWER KEY · Mock Set 02				
26 (a)	27 (b)	28 (b)	29 (d)	30 (d)
31 (d)	32 (b)	33 (b)	34 (d)	35 (b)
36 (b)	37 (b)	38 (a)	39 (c)	40 (c)
41 (b)	42 (b)	43 (b)	44 (b)	45 (b)
46 (b)	47 (c)	48 (b)	49 (b)	

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 **Ans (a)**

1936

1936 = 44² और 44 = 4 × 11, इसलिए 1936, 11 से विभाज्य है। (2025 = 45², 2401 = 49², 2809 = 53² — कोई भी 11 से विभाज्य नहीं।)

Q27 **Ans (b)**

Irrational

√2 + √8 = √2 + 2√2 = 3√2, जो **Irrational** है।

Q28 **Ans (b)**

1/3

$0.\overline{3}$ = 3/9 = **1/3**।

Q29 **Ans (d)**

Non-terminating, non-repeating

5 perfect square नहीं है, इसलिए √5 irrational है ⇒ दशमलव प्रसार **non-terminating, non-repeating**।

Q30 **Ans (d)**

आकृति 4

$10^n \div 6$ का शेषफल हर n ≥ 1 के लिए 4 है (10 → 4, 100 → 4, ...)।

100 पदों का शेषफल = 100 × 4 = 400; 400 ÷ 6 का शेषफल = **4**।

Q31 **Ans (d)**

26

इकाई = 3 × दहाई। दहाई = t ⇒ t + 3t = 8 ⇒ t = 2 ⇒ संख्या **26**।

Q32 **Ans (b)**

8

$(n+2)^2 - n^2 = 4n + 4 = 128 \Rightarrow n = 31$। संख्याएँ 31, 33, योग 64 ⇒ √64 = **8**।

Q33 **Ans (b)**

6

$\sqrt{(6^n)} = 6^{(n/2)} = 216 = 6^3 \Rightarrow$ **n = 6**।

Q34 **Ans (d)**

11 pairs

अंकों का योग 7+6+3+x+4+y+2 = 22 + x + y ⇒ 9 से विभाज्य होने के लिए x + y = 5 या 14।

x + y = 5 के जोड़े: (0,5) ... (5,0) = 6; x + y = 14: (5,9) ... (9,5) = 5। कुल **11 जोड़े**।

Q35 **Ans (b)**

83

20 और 35 के बीच अभाज्य: 23, 29, 31 ⇒ योग **83**।

Q36 **Ans (b)**

7

44 = 4 × 11। **4 से:** y2 ⇒ y विषम (12, 32, 52, 72, 92)।

11 से: (1 + x + y) - (5 + 1 + 2) = x + y - 7 ⇒ 0 या 11 ⇒ x + y = 7 या 18। विकल्प में **7**।

Q37 **Ans (b)**

$\sqrt{a} + \sqrt{b} \neq \sqrt{(a+b)}$ in general.

√8 + √18 = 2√2 + 3√2 = 5√2 = √50 ≠ √26। सामान्यतः **$\sqrt{a} + \sqrt{b} \neq \sqrt{(a+b)}$**, इसलिए दावा ग़लत है।

Q38 **Ans (a)**

0.55

11/20 = 55/100 = **0.55**।

Q39 **Ans (c)**

No four distinct prime numbers can satisfy this equation.

अलग-अलग अभाज्य संख्याओं के वर्गमूल rationally independent होते हैं। इसलिए √a + √b = √c + √d (चारों अलग अभाज्य) संभव ही नहीं: **ऐसे चार अभाज्य नहीं मिल सकते**।

Q40 **Ans (c)**

2

4 + 8 + 3 + x + 7 = 22 + x ⇒ 3 से विभाज्य होने के लिए सबसे छोटा x = **2** (योग 24)।

Q41 **Ans (b)**

23

100 और 400 के बीच 13 का पहला गुणज 104 = 13×8, आख़िरी 390 = 13×30। संख्या = 30 - 8 + 1 = **23**।

Q42 **Ans (b)**

2

वर्ग का इकाई अंक 6 तभी आता है जब संख्या का इकाई अंक 4 या 6 हो (4^2 = 16, 6^2 = 36)। इसलिए **2** संभावनाएँ।

Q43 **Ans (b)**

900

LCM(10, 12, 15, 18) = 180 = $2^2 \times 3^2 \times 5$। 5 की घात विषम है ⇒ 180 × 5 = **900**।

Q44 **Ans (b)**

3600

LCM(3, 4, 5, 6, 8) = 120 = $2^3 \times 3 \times 5$। सभी घातें सम करने के लिए × 2 × 3 × 5 = 30 ⇒ 120 × 30 = **3600**।

Q45 **Ans (b)**

900

LCM(4, 9, 10) = 180 = $2^2 \times 3^2 \times 5$ ⇒ × 5 ⇒ **900**।

Q46 **Ans (b)**

900

LCM(6, 15, 20) = 60 = $2^2 \times 3 \times 5$ ⇒ × 3 × 5 = 15 ⇒ **900**।

Q47 **Ans (c)**

12

5 और 7 दोनों से विभाज्य = 35 के गुणज। 200–600 में: 210 (35×6) से 595 (35×17) ⇒ 17 − 6 + 1 = **12**।

Q48 **Ans (b)**

17

LCM(4, 6) = 12। 100–300 में: 108 (12×9) से 300 (12×25) ⇒ 25 − 9 + 1 = **17**।

Q49 **Ans (b)**

8

LCM(3, 4, 5) = 60। 1–500 में: 60 से 480 (60×8) ⇒ **8**।

CHAPTER 02

Simplification & Approximation

BODMAS · Surds & Indices · Fractions · Approximation

80	1	3	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Simplification & Approximation

01 a³ ± b³ पहचानें
(a³ - b³)/(a² + ab + b²) = a - b; हर का बीच वाला पद = a × b दिख जाए तो सीधे a - b लिखें।

02 Double surd
√(a ± 2√b) = √x ± √y जहाँ x + y = a, xy = b। जैसे 7 - 4√3 = (2 - √3)²।

03 Rationalise + Telescoping
1/(√(n+1) + √n) = √(n+1) - √n; श्रेणी में बीच के पद कट जाते हैं।

04 √2, √3, √5 के मान
1.414, 1.732, 2.236 याद रखें; (p + q√k)/√k = p/√k + q के रूप में तोड़ें।

05 Continued fraction
हमेशा सबसे नीचे से ऊपर की ओर हल करें।

Mock Set 01 Q1–Q25 · 30 Sep → 7 Oct

TOPIC · Simplification and Approximation (1/3)

Q1 If $\sqrt{2} = 1.414$, then find the value of $\frac{4+\sqrt{2}}{\sqrt{2}}$.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 2.124 (b) 2.342 (c) 3.167 (d) 3.828

Q2 Simplify: [(1.25 × 1.25 × 1.25 - 1) ÷ (1.25 × 1.25 + 1.25 + 1)] + 0.75.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 1 (b) 0 (c) 3 (d) 5

Q3 Solve: $\frac{1}{\sqrt{9}-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}}$

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) $3+\sqrt{6}$ (b) $3-\sqrt{6}$ (c) $3+\sqrt{5}$ (d) 3

Q4 If a * b = a + b + ab, then 3 * 5 - 2 * 4 is equal to?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 9 (b) 8 (c) 13 (d) 23

Q5 Simplify: $\frac{0.05\times0.05\times0.05+0.04\times0.04\times0.04}{0.05\times0.05-0.05\times0.04+0.04\times0.04}$.

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 0.07 (b) 0.09 (c) 0.08 (d) 0.05

Q6 The value of $\sqrt{0.09}+\sqrt{0.49}+\sqrt{1.21}+\sqrt{0.0004}$ is:

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 1.84 (b) 4.06 (c) 3.26 (d) 2.12

Q7 Evaluate: $\left[\frac{(2.7)^3-(1.3)^3}{(2.7)^2+3.51+(1.3)^2}\right]^2$

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 1.54 (b) 1.96 (c) 2.34 (d) 2.87

Q8 If $\sqrt{2} = 1.414$, then find the value of $\frac{6+2\sqrt{2}}{\sqrt{2}}$.

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 2.346 (b) 4.786 (c) 6.242 (d) 8.654

Q9 The value of $\sqrt{0.16}+\sqrt{0.81}+\sqrt{1.69}+\sqrt{0.0025}$ is:

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 1.45 (b) 3.25 (c) 2.65 (d) 4.05

Q10 Find the value of K if $\frac{(0.9)^6-(0.4)^6}{(0.9)^4+0.1296+(0.4)^4}=K$.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 0.35 (b) 0.45 (c) 0.25 (d) 0.65

Q11 Find the remainder when (6.8^3 - 0.008) is divided by (6.8^2 + 1.36 + 0.04).

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 1 (b) 0 (c) 3 (d) 5

Q12 Solve: $\frac{1}{1+\sqrt{2}}+\frac{1}{\sqrt{2}+\sqrt{3}}+\cdots+\frac{1}{\sqrt{8}+\sqrt{9}}$

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 0 (b) 1 (c) 2 (d) 3

Q13 If $\sqrt{5}=2.236$, then find the value of $\frac{15+5\sqrt{5}}{\sqrt{5}}$.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 5.564 (b) 7.854 (c) 11.708 (d) 14.564

Q14 If $\sqrt{2}=1.414$, then find the value of $\frac{8\sqrt{2}+4}{\sqrt{2}}$.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 4.564 (b) 8.452 (c) 10.828 (d) 12.456

Q15 A number x = 0.363636... + $\frac{5}{12}$ is expressed as a simplified fraction $\frac{p}{q}$. What is the value of p + q?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 230 (b) 235 (c) 240 (d) 220

Q16 Simplify: √900 + √0.0625 - √16.81.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 14.37 (b) 19.65 (c) 23.06 (d) 26.15

Q17 Evaluate the following numerical expression using an appropriate algebraic identity: $\frac{5.37\times5.37-4.63\times4.63}{0.74}$

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 1 (b) 7.3 (c) 4.6 (d) 10

Q18 Simplify the following expression completely: $\frac{3}{\sqrt{5}+\sqrt{2}}+\frac{2}{\sqrt{5}-\sqrt{2}}$

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) $\frac{5\sqrt{5}+\sqrt{2}}{3}$ (b) $\frac{\sqrt{5}-5\sqrt{2}}{3}$ (c) $\frac{5\sqrt{5}-\sqrt{2}}{3}$ (d) $\frac{5}{2\sqrt{5}}$

Q19 Find the value of: $2+\frac{1}{1+\frac{1}{1+\frac{1}{3}}}$.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) $\frac{6}{7}$ (b) $\frac{13}{7}$ (c) $\frac{1}{5}$ (d) $\frac{18}{7}$

Q20 If $\sqrt{1+\frac{x}{256}}=\frac{17}{16}$, find the value of x.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 24 (b) 45 (c) 52 (d) 33

Q21 Simplify: $[(0.6)^4-(0.5)^4]\div[(0.6)^2+(0.5)^2]$.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 0.15 (b) 0.11 (c) 0.18 (d) 0.19

Q22 Simplify the following expression: $\frac{0.65\times0.65\times0.65-0.13\times0.13\times0.13}{0.65\times0.65+0.65\times0.13+0.13\times0.13}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 0.28 (b) 0.52 (c) 0.45 (d) 0.76

Q23 Simplify the following nested radical expression completely: $\frac{1}{\sqrt{4+2\sqrt{3}}}$

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\frac{\sqrt{3}-1}{2}$ (b) $\sqrt{3}-1$ (c) $\sqrt{3}+1$ (d) $\frac{1-\sqrt{3}}{2}$

Q24 Solve: $\frac{1}{\sqrt{2}+1}+\frac{1}{\sqrt{3}+\sqrt{2}}+\frac{1}{\sqrt{4}+\sqrt{3}}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 0 (b) 1 (c) 2 (d) 3

Q25 If √3 = 1.732, then find the value of $\frac{6\sqrt{3}+9}{\sqrt{3}}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 2.457 (b) 11.196 (c) 14.786 (d) 4.652

ANSWER KEY · Mock Set 01

1 (d)	2 (a)	3 (a)	4 (a)	5 (b)
6 (d)	7 (b)	8 (c)	9 (c)	10 (d)
11 (b)	12 (c)	13 (c)	14 (c)	15 (b)
16 (d)	17 (d)	18 (c)	19 (d)	20 (d)
21 (b)	22 (b)	23 (a)	24 (b)	25 (b)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (d)

3.828

(4 + √2)/√2 = 4/√2 + 1 = 2√2 + 1 = 2(1.414) + 1 = **3.828**।

Q2 Ans (a)

1

a = 1.25 लें। $(a^3-1)/(a^2+a+1)$ = a - 1 = 0.25 [∵ $a^3-b^3=(a-b)(a^2+ab+b^2)$]।

0.25 + 0.75 = **1**।

Q3 **Ans (a)**

$3+\sqrt{6}$

Rationalise: 1/(√9 - √8) = 3 + √8, 1/(√8 - √7) = √8 + √7, 1/(√7 - √6) = √7 + √6।
(3 + √8) - (√8 + √7) + (√7 + √6) = **3 + √6**।

Q4 **Ans (a)**

9

3 * 5 = 3 + 5 + 15 = 23; 2 * 4 = 2 + 4 + 8 = 14 ⇒ 23 - 14 = **9**।

Q5 **Ans (b)**

0.09

(a³ + b³)/(a² - ab + b²) = a + b, जहाँ a = 0.05, b = 0.04 ⇒ **0.09**।

Q6 **Ans (d)**

2.12

√0.09 + √0.49 + √1.21 + √0.0004 = 0.3 + 0.7 + 1.1 + 0.02 = **2.12**।

Q7 **Ans (b)**

1.96

3.51 = 2.7 × 1.3, इसलिए भिन्न = (a³ - b³)/(a² + ab + b²) = a - b = 1.4।
वर्ग = 1.4² = **1.96**।

Q8 **Ans (c)**

6.242

(6 + 2√2)/√2 = 3√2 + 2 = 4.242 + 2 = **6.242**।

Q9 **Ans (c)**

2.65

0.4 + 0.9 + 1.3 + 0.05 = **2.65**।

Q10 **Ans (d)**

0.65

a = 0.9, b = 0.4 ⇒ a²b² = 0.81 × 0.16 = 0.1296।
(a⁶ - b⁶)/(a⁴ + a²b² + b⁴) = a² - b² = 0.81 - 0.16 = **0.65**।

Q11 **Ans (b)**

0

0.008 = 0.2³ और 1.36 = 6.8 × 0.2, 0.04 = 0.2²। अंश = (a³ - b³) = (a - b)(a² + ab + b²), जो हर से पूरा विभाज्य है ⇒ शेषफल **0**।

Q12 **Ans (c)**

आकृति 2

1/(√n + √(n+1)) = √(n+1) - √n। सारे पद कट जाते हैं: √9 - √1 = 3 - 1 = **2**।

Q13 **Ans (c)**

11.708

(15 + 5√5)/√5 = 3√5 + 5 = 6.708 + 5 = **11.708**।

Q14 **Ans (c)**

10.828

(8√2 + 4)/√2 = 8 + 2√2 = 8 + 2.828 = **10.828**।

Q15 **Ans (b)**

235

0.3636… = 36/99 = 4/11। x = 4/11 + 5/12 = (48 + 55)/132 = 103/132।
p + q = 103 + 132 = **235**।

Q16 **Ans (d)**

26.15

√900 + √0.0625 - √16.81 = 30 + 0.25 - 4.1 = **26.15**।

Q17 **Ans (d)**

10

(5.37² - 4.63²)/0.74 = (5.37 - 4.63)(5.37 + 4.63)/0.74 = 0.74 × 10/0.74 = **10**।

Q18 **Ans (c)**

$\frac{5\sqrt{5}-\sqrt{2}}{3}$

3/(√5 + √2) = 3(√5 - √2)/3 = √5 - √2; 2/(√5 - √2) = 2(√5 + √2)/3।
योग = (3√5 - 3√2 + 2√5 + 2√2)/3 = **(5√5 - √2)/3**।

Q19 **Ans (d)**

$\frac{18}{7}$

नीचे से हल करें: 1 + 1/3 = 4/3 → 1 + 3/4 = 7/4 → 1/(7/4) = 4/7।
2 + 4/7 = **18/7**।

Q20 **Ans (d)**

33

दोनों पक्षों का वर्ग: 1 + x/256 = 289/256 ⇒ x/256 = 33/256 ⇒ **x = 33**।

Q21 **Ans (b)**

0.11

(a⁴ - b⁴)/(a² + b²) = a² - b² = 0.36 - 0.25 = **0.11**।

Q22 **Ans (b)**

0.52

0.65 × 0.13 बीच का पद है ⇒ $(a^3 - b^3)/(a^2 + ab + b^2) = a - b$ = 0.65 - 0.13 = **0.52**।

Q23 **Ans (a)**

$\frac{\sqrt{3}-1}{2}$

$4 + 2\sqrt{3} = (\sqrt{3} + 1)^2 \Rightarrow \sqrt{(4 + 2\sqrt{3})} = \sqrt{3} + 1$।

$1/(\sqrt{3} + 1) = (\sqrt{3} - 1)/2$।

Q24 **Ans (b)**

आकृति 1

Telescoping: $(\sqrt{2} - 1) + (\sqrt{3} - \sqrt{2}) + (\sqrt{4} - \sqrt{3}) = \sqrt{4} - 1 =$ **1**।

Q25 **Ans (b)**

11.196

$(6\sqrt{3} + 9)/\sqrt{3} = 6 + 3\sqrt{3} = 6 + 5.196 =$ **11.196**।

Mock Set 02 Q26–Q50 · 7 Oct → 14 Oct

TOPIC · Simplification and Approximation (2/3)

Q26 Find the value of $\frac{(4.6)^4-(1.1)^4}{(4.6)^2+(1.1)^2} \div \frac{(4.6)^3-(1.1)^3}{(4.6)^2+5.06+(1.1)^2}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 4.8 (b) 5.7 (c) 6.8 (d) 8.5

Q27 Find the value of $\frac{(1.331-1)}{1.21+1.1+1}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 0.5 (b) 0.1 (c) 0.7 (d) 0.9

Q28 Simplify the expression:
$\sqrt{0.25} + \sqrt{0.36} + \sqrt{1.44} + \sqrt{0.0009}$.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 2.33 (b) 1.67 (c) 4.71 (d) 3.19

Q29 Simplify the following expression:
$\frac{\sqrt{3}+1}{\sqrt{3}-1} + \frac{\sqrt{3}-1}{\sqrt{3}+1}$

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 4 (b) $3\sqrt{3}$ (c) $2\sqrt{3}$ (d) 2

Q30 Find the value of $\frac{(6.25)^{3/2}-(1.44)^{3/2}}{6.25+3+1.44}$.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 1.8 (b) 1.3 (c) 2.4 (d) 2.8

Q31 If $x = 9 + 4\sqrt{5}$, what is the value of $\left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)^2$?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 15 (b) 18 (c) 20 (d) 22

Q32 If $\sqrt{2} = 1.414$, then find the value of $\frac{2+3\sqrt{2}}{\sqrt{2}}$.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 1.542 (b) 2.786 (c) 3.212 (d) 4.414

Q33 Which mixed fraction is equal to the decimal 4.25?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 4(1/5) (b) 4(2/5) (c) 4(1/3) (d) 4(1/4)

Q34 Find the value of $\frac{(5.4)^3-1}{(5.4)^2+6.4}$.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 3.8 (b) 4.4 (c) 7.6 (d) 5.8

Q35 The value of $\frac{(2.4)^3-(0.4)^3}{(2.4)^2+0.96+(0.4)^2}$ expressed as a fraction in simplest form is:

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) $\frac{1}{2}$ (b) $\frac{5}{6}$ (c) $\frac{3}{4}$ (d) $\frac{2}{1}$

Q36 If $\sqrt{(a + \sqrt{b})} = \sqrt{x} + \sqrt{y}$, where a = 5, b = 21, and x, y are rational numbers, determine the value of x + y.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 25 (b) 10 (c) 5 (d) 21

Q37 Simplify the following expression:
$\frac{0.75\times0.75\times0.75-0.001}{0.75\times0.75+0.075+0.01}$.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 0.45 (b) 0.65 (c) 0.58 (d) 0.78

Q38 Evaluate: $103^2 - 97^2$

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 1121 (b) 1320 (c) 1200 (d) 1424

Q39 Find the value of $\frac{(1\frac{1}{2})^3-(\frac{1}{2})^3}{(1\frac{1}{2})^2+\frac{3}{4}+(\frac{1}{2})^2}$.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 3 (b) 1 (c) 5 (d) 8

Q40 Evaluate: $\frac{(0.125-0.027)}{0.25+0.15+0.09}$.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 0.4 (b) 0.2 (c) 0.6 (d) 0.8

Q41 Find the value of $\frac{(0.013)^3-(0.011)^3}{(0.013)^2+0.000143+(0.011)^2}$.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 0.004 (b) 0.002 (c) 0.006 (d) 0.008

Q42 The square root of 1.44×0.81 is:

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 0.98 (b) 1.08 (c) 1.18 (d) 1.28

Q43 Find the value of $\sqrt{23-2\sqrt{132}}-\frac{1}{\sqrt{23-2\sqrt{132}}}$.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) $-2\sqrt{11}$ (b) $2\sqrt{11}$ (c) $-2\sqrt{12}$ (d) $2\sqrt{12}$

Q44 If $\sqrt{0.03\times0.3\times a}=0.3\times\sqrt{0.3}$, find a.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 0.03 (b) 0.3 (c) 3 (d) 30

Q45 Evaluate 196^2.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 38496 (b) 38436 (c) 36466 (d) 38416

Q46 Find the value of $\frac{3.5\times3.5\times3.5-2.5\times2.5\times2.5}{12.25+8.75+6.25}$.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 0 (b) 1 (c) 3 (d) 2

Q47 Evaluate the following expression without direct calculation by using an appropriate algebraic identity: $\frac{(3.75)^2-(1.25)^2}{(3.75)^2+2(3.75)(1.25)+(1.25)^2}$

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{1}{5}$

Q48 Simplify the following expression completely: $(2\sqrt{3}-\sqrt{2})(2\sqrt{3}+\sqrt{2})$

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 14 (b) 10 (c) 12 (d) 4

Q49 Simplify the following expression completely: $\frac{\sqrt{10+\sqrt{84}}+\sqrt{10-\sqrt{84}}}{\sqrt{14+\sqrt{96}}-\sqrt{14-\sqrt{96}}}$

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) $\frac{\sqrt{7}}{2}$ (b) $\frac{\sqrt{14}}{2}$ (c) $\frac{\sqrt{7}}{\sqrt{3}}$ (d) $\sqrt{\left(\frac{7}{3}\right)}$

Q50 Simplify: $\frac{\left(\frac{1}{0.2}\right)^3-\left(\frac{1}{0.5}\right)^3}{\left(\frac{1}{0.2}\right)^2+\left(\frac{1}{0.2\times0.5}\right)+\left(\frac{1}{0.5}\right)^2}$.

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 1 (b) 3 (c) 2 (d) 4

ANSWER KEY · Mock Set 02

26 (b)	27 (b)	28 (a)	29 (a)	30 (b)
31 (c)	32 (d)	33 (d)	34 (b)	35 (d)
36 (c)	37 (b)	38 (c)	39 (b)	40 (b)
41 (b)	42 (b)	43 (a)	44 (c)	45 (d)
46 (b)	47 (a)	48 (b)	49 (b)	50 (b)

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (b)

5.7

पहली भिन्न: $(a^4 - b^4)/(a^2 + b^2) = a^2 - b^2$। दूसरी ($5.06 = 4.6 \times 1.1$): $(a^3 - b^3)/(a^2 + ab + b^2) = a - b$।
$(a^2 - b^2) \div (a - b) = a + b = 4.6 + 1.1 =$ **5.7**।

Q27 Ans (b)

0.1

$1.331 = 1.1^3$, $1.21 = 1.1^2 \Rightarrow (a^3 - 1)/(a^2 + a + 1) = a - 1 =$ **0.1**।

Q28 Ans (a)

2.33

$0.5 + 0.6 + 1.2 + 0.03 =$ **2.33**।

Q29 Ans (a)

आकृति 4

$(\sqrt{3} + 1)^2/2 + (\sqrt{3} - 1)^2/2 = [(4 + 2\sqrt{3}) + (4 - 2\sqrt{3})]/2 =$ **4**।

Q30 Ans (b)

1.3

$u = \sqrt{6.25} = 2.5$, $v = \sqrt{1.44} = 1.2 \Rightarrow uv = 3$। भिन्न $= (u^3 - v^3)/(u^2 + uv + v^2) = u - v =$ **1.3**।

Q31 Ans (c)

20

$9 + 4\sqrt{5} = (\sqrt{5} + 2)^2 \Rightarrow \sqrt{x} = \sqrt{5} + 2$, $1/\sqrt{x} = \sqrt{5} - 2$।
$(\sqrt{x} + 1/\sqrt{x})^2 = (2\sqrt{5})^2 =$ **20**।

Q32 Ans (d)

4.414

$(2 + 3\sqrt{2})/\sqrt{2} = \sqrt{2} + 3 =$ **4.414**।

Q33 Ans (d)

4(1/4)

$4.25 = 4 + 25/100 =$ **4¼**।

Q34 **Ans (b)**

4.4

6.4 = 5.4 + 1, इसलिए हर = $a^2 + a + 1$ ($a = 5.4$) ⇒ $(a^3 - 1)/(a^2 + a + 1) = a - 1 = 4.4$।

Q35 **Ans (d)**

$\frac{2}{1}$

0.96 = 2.4 × 0.4 ⇒ भिन्न = a - b = 2.4 - 0.4 = 2 = **2/1**।

Q36 **Ans (c)**

आकृति 5

वर्ग करें: $a + \sqrt{b} = x + y + 2\sqrt{(xy)} \Rightarrow 5 + \sqrt{21} = (x + y) + 2\sqrt{(xy)}$।
Rational भाग मिलाने पर **x + y = 5**।

Q37 **Ans (b)**

0.65

$0.001 = 0.1^3$, $0.075 = 0.75 \times 0.1$, $0.01 = 0.1^2$ ⇒ a - b = 0.75 - 0.1 = **0.65**।

Q38 **Ans (c)**

1200

$103^2 - 97^2 = (103 - 97)(103 + 97) = 6 \times 200 =$ **1200**।

Q39 **Ans (b)**

आकृति 1

a = 3/2, b = 1/2 ⇒ ab = 3/4 (हर का बीच का पद)। भिन्न = a - b = **1**।

Q40 **Ans (b)**

0.2

$0.125 = 0.5^3$, $0.027 = 0.3^3$; हर $0.25 + 0.15 + 0.09 = a^2 + ab + b^2 \Rightarrow$ a - b = **0.2**।

Q41 **Ans (b)**

0.002

0.000143 = 0.013 × 0.011 ⇒ a - b = 0.013 - 0.011 = **0.002**।

Q42 **Ans (b)**

1.08

$\sqrt{(1.44 \times 0.81)} = 1.2 \times 0.9 =$ **1.08**।

Q43 **Ans (a)**

$-2\sqrt{11}$

$23 - 2\sqrt{132} = (\sqrt{12} - \sqrt{11})^2 \Rightarrow \sqrt{(\ldots)} = \sqrt{12} - \sqrt{11}$ और $1/(\sqrt{12} - \sqrt{11}) = \sqrt{12} + \sqrt{11}$।
$(\sqrt{12} - \sqrt{11}) - (\sqrt{12} + \sqrt{11}) =$ **-2√11**।

Q44 **Ans (c)**

आकृति 3

वर्ग करें: 0.03 × 0.3 × a = 0.09 × 0.3 ⇒ 0.009a = 0.027 ⇒ **a = 3**।

Q45 **Ans (d)**

38416

$196^2 = (200 - 4)^2 = 40000 - 1600 + 16 =$ **38416**।

Q46 **Ans (b)**

आकृति 1

12.25 = 3.5^2, 8.75 = 3.5 × 2.5, 6.25 = 2.5^2 ⇒ a - b = **1**।

Q47 **Ans (a)**

$\frac{1}{2}$

$(a^2 - b^2)/(a + b)^2 = (a - b)/(a + b) = 2.5/5 =$ **1/2**।

Q48 **Ans (b)**

10

$(a - b)(a + b) = a^2 - b^2 = 12 - 2 =$ **10**।

Q49 **Ans (b)**

$\frac{\sqrt{14}}{2}$

$10 \pm \sqrt{84} = 10 \pm 2\sqrt{21} = (\sqrt{7} \pm \sqrt{3})^2 \Rightarrow$ अंश = $(\sqrt{7} + \sqrt{3}) + (\sqrt{7} - \sqrt{3}) = 2\sqrt{7}$।
$14 \pm \sqrt{96} = 14 \pm 2\sqrt{24} = (\sqrt{12} \pm \sqrt{2})^2 \Rightarrow$ हर = $(\sqrt{12} + \sqrt{2}) - (\sqrt{12} - \sqrt{2}) = 2\sqrt{2}$।
$2\sqrt{7}/(2\sqrt{2}) = \sqrt{7}/\sqrt{2} =$ **√14/2**।

Q50 **Ans (b)**

आकृति 3

a = 1/0.2 = 5, b = 1/0.5 = 2 ⇒ $(a^3 - b^3)/(a^2 + ab + b^2)$ = a - b = **3**।

Mock Set 03 Q51–Q80 · 15 Oct → 28 Oct

TOPIC · Simplification and Approximation (3/3)

Q51 If $\frac{(1.6)^3 - K}{(1.6)^2 + 0.8 + 0.25} = 1.1$, find the value of K.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 1.345 (b) 0.125 (c) 0.565 (d) 1.785

Q52 If $\sqrt{5} = 2.236$, then find the value of $\frac{10 - \sqrt{5}}{\sqrt{5}}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 1.452 (b) 3.472 (c) 4.587 (d) 5.256

Q53 Simplify the following decimal radical expression completely:
$\sqrt{6.25} - \sqrt{2.25} + \sqrt{0.25}$

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $\frac{1}{2}$ (b) $\frac{5}{2}$ (c) $\frac{7}{2}$ (d) $\frac{3}{2}$

Q54 Solve: $\frac{1}{\sqrt{5}+\sqrt{4}} + \frac{1}{\sqrt{6}+\sqrt{5}} + \frac{1}{\sqrt{7}+\sqrt{6}}$

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) $\sqrt{7}-2$ (b) $\sqrt{7}+2$ (c) $\sqrt{5}-2$ (d) 0

Q55 Find the value of $\frac{(0.87)^3-(0.13)^3}{(0.87)^2+0.1131+(0.13)^2}$.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 0.48 (b) 0.56 (c) 0.24 (d) 0.74

Q56 Which of the following is true?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) $\sqrt[4]{10} > \sqrt[3]{6}$

(b) $\sqrt[3]{6} > \sqrt[4]{10}$

(c) $\sqrt[3]{6}$ and $\sqrt[4]{10}$ cannot be compared

(d) $\sqrt[3]{6} = \sqrt[4]{10}$

Q57 Find the value of $\sqrt{5-2\sqrt{6}} - \frac{1}{\sqrt{5-2\sqrt{6}}}$.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) $-2\sqrt{2}$ (b) $2\sqrt{2}$ (c) $-2\sqrt{3}$ (d) $2\sqrt{3}$

Q58 Find the value of $\sqrt{15-2\sqrt{56}} - \frac{1}{\sqrt{15-2\sqrt{56}}}$.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) $-2\sqrt{7}$ (b) $2\sqrt{7}$ (c) $-2\sqrt{8}$ (d) $2\sqrt{8}$

Q59 A library has 1521 books. The librarian arranges them equally on square racks. How many books should be on each side of a square rack?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 41 (b) 31 (c) 49 (d) 39

Q60 Solve: $\frac{1}{\sqrt{3}-\sqrt{2}} - \frac{1}{\sqrt{4}-\sqrt{3}}$

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) $\sqrt{2}-2$ (b) $\sqrt{3}-2$ (c) $\sqrt{2}+2$ (d) 0

Q61 Find the value of $\sqrt{13-2\sqrt{42}} - \frac{1}{\sqrt{13-2\sqrt{42}}}$.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) $-2\sqrt{6}$ (b) $2\sqrt{6}$ (c) $-2\sqrt{7}$ (d) $2\sqrt{7}$

Q62 Find the value of $\frac{(2.3)^3-(0.3)^3}{(2.3)^2+0.69+(0.3)^2}$.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 4 (b) 2 (c) 6 (d) 8

Q63 Simplify the following expression completely:
$(\sqrt{7}+\sqrt{3})^2 - (\sqrt{7}-\sqrt{3})^2$

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 0 (b) $2\sqrt{21}$ (c) $6\sqrt{21}$ (d) $4\sqrt{21}$

Q64 A certain positive number equals 0.9801 when squared. What is the number?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 0.975 (b) 0.95 (c) 0.99 (d) 1.01

Q65 If $\sqrt{8^n} = 4096$, then the value of n is:

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 4 (b) 3 (c) 6 (d) 8

Q66 Find the value of $\frac{(0.75)^3-(0.25)^3}{0.5625+0.1875+0.0625}$.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 0.2 (b) 0.8 (c) 0.6 (d) 0.5

Q67 If $\sqrt{5} = 2.236$, then find the value of $\frac{5\sqrt{5}+20}{\sqrt{5}}$.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 4.765 (b) 8.245 (c) 13.944 (d) 16.786

Q68 Consider the statement: 99.8^2 = 10000 - K + 0.04. To make this statement mathematically true, what must be the value of K?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 0.4 (b) 4 (c) 40 (d) 400

Q69 Simplify the expression:
$\frac{(0.2\times0.2\times0.2+0.04\times0.04\times0.04)}{(0.4\times0.4\times0.4+0.08\times0.08\times0.08)}$.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $\frac{1}{2}$ (b) $\frac{1}{8}$ (c) $\frac{1}{6}$ (d) $\frac{1}{4}$

Q70 Simplify the following radical expression completely: $\sqrt[3]{54} + \sqrt[3]{128} - \sqrt[3]{16}$

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $9\sqrt[3]{2}$ (b) $5\sqrt[3]{2}$ (c) $4\sqrt[3]{2}$ (d) $7\sqrt[3]{2}$

Q71 Find the value of $\frac{(0.02)^3-(0.002)^3}{0.0004+0.00004+0.000004}$.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 0.015 (b) 0.025 (c) 0.018 (d) 0.035

Q72 The product of two decimals is 0.768. If one of the numbers is 1.6, find the other number.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 0.35 (b) 0.78 (c) 0.45 (d) 0.48

Q73 Evaluate: $\frac{(0.98)^3-(0.02)^3}{0.9604+0.0196+0.0004}$.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 0.24 (b) 0.45 (c) 0.66 (d) 0.96

Q74 Find the value of $\sqrt{11-2\sqrt{30}}-\frac{1}{\sqrt{11-2\sqrt{30}}}$.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) $-2\sqrt{5}$ (b) $2\sqrt{5}$ (c) $-2\sqrt{6}$ (d) $2\sqrt{6}$

Q75 If 0.13 ÷ p = 13, what is the value of p?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 0.25 (b) 0.01 (c) 1.78 (d) 0.05

Q76 Evaluate: $\frac{0.001-0.008}{0.01+0.02+0.04}$.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 0.2 (b) -0.1 (c) -0.3 (d) 0.4

Q77 Find the value of $\sqrt{7-4\sqrt{3}}-\frac{1}{\sqrt{7-4\sqrt{3}}}$.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) $-2\sqrt{3}$ (b) $2\sqrt{3}$ (c) -4 (d) 4

Q78 What is the simplified value of $\frac{3.6\times0.48\times2.5}{0.12\times0.09\times0.5}$?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 500 (b) 800 (c) 600 (d) 200

Q79 Evaluate: $\left(3\frac{2}{7}\right)\times\left(2\frac{1}{3}\right)\div\left(1\frac{5}{6}\right)$. Express as a mixed number.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) $4\frac{4}{11}$ (b) $4\frac{2}{3}$ (c) $4\frac{2}{11}$ (d) $3\frac{22}{33}$

Q80 Find the value of $2+\frac{1}{2+\frac{1}{2-\frac{1}{2}}}$.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $\frac{5}{6}$ (b) $\frac{19}{8}$ (c) $\frac{17}{5}$ (d) $\frac{6}{7}$

ANSWER KEY · Mock Set 03

51 (b)	52 (b)	53 (d)	54 (a)	55 (d)
56 (b)	57 (a)	58 (a)	59 (d)	60 (a)
61 (a)	62 (b)	63 (d)	64 (c)	65 (d)
66 (d)	67 (c)	68 (c)	69 (b)	70 (b)
71 (c)	72 (d)	73 (d)	74 (a)	75 (b)
76 (b)	77 (a)	78 (b)	79 (c)	80 (b)

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q51 Ans (b)

0.125

0.8 = 1.6 × 0.5, 0.25 = 0.5² ⇒ हर = a² + ab + b² (b = 0.5)। तब K = b³ = **0.125** और मान a - b = 1.1 ✓।

Q52 Ans (b)

3.472

(10 - √5)/√5 = 2√5 - 1 = 4.472 - 1 = **3.472**।

Q53 Ans (d)

$\frac{3}{2}$

2.5 - 1.5 + 0.5 = 1.5 = **3/2**।

Q54 Ans (a)

$\sqrt{7}-2$

1/(√(n+1) + √n) = √(n+1) - √n ⇒ (√5 - √4) + (√6 - √5) + (√7 - √6) = **√7 - 2**।

Q55 Ans (d)

0.74

0.1131 = 0.87 × 0.13 ⇒ a - b = **0.74**।

Q56 Ans (b)

$\sqrt[3]{6} > \sqrt[4]{10}$

LCM(3, 4) = 12 की घात लें: $(\sqrt[3]{6})^{12} = 6^4 = 1296$, $(\sqrt[4]{10})^{12} = 10^3 = 1000$। 1296 > 1000 ⇒ **$\sqrt[3]{6} > \sqrt[4]{10}$**।

Q57 Ans (a)

$-2\sqrt{2}$

5 - 2√6 = (√3 - √2)² ⇒ √(...) = √3 - √2, उसका व्युत्क्रम = √3 + √2। अंतर = **-2√2**।

Q58 **Ans (a)**

$-2\sqrt{7}$

15 - 2√56 = (√8 - √7)² ⇒ (√8 - √7) - (√8 + √7) = **-2√7**।

Q59 **Ans (d)**

39

Square rack की हर side पर √1521 = **39** किताबें।

Q60 **Ans (a)**

$\sqrt{2}-2$

1/(√3 - √2) = √3 + √2, 1/(√4 - √3) = 2 + √3 ⇒ अंतर = **√2 - 2**।

Q61 **Ans (a)**

$-2\sqrt{6}$

13 - 2√42 = (√7 - √6)² ⇒ (√7 - √6) - (√7 + √6) = **-2√6**।

Q62 **Ans (b)**

आकृति 2

0.69 = 2.3 × 0.3 ⇒ a - b = **2**।

Q63 **Ans (d)**

$4\sqrt{21}$

(a + b)² - (a - b)² = 4ab = 4√7·√3 = **4√21**।

Q64 **Ans (c)**

0.99

√0.9801 = **0.99** (99² = 9801)।

Q65 **Ans (d)**

8

√(8ⁿ) = 8^(n/2) = 4096 = 8⁴ ⇒ **n = 8**।

Q66 **Ans (d)**

0.5

0.5625 = 0.75², 0.1875 = 0.75 × 0.25, 0.0625 = 0.25² ⇒ a - b = **0.5**।

Q67 **Ans (c)**

13.944

(5√5 + 20)/√5 = 5 + 4√5 = 5 + 8.944 = **13.944**।

Q68 **Ans (c)**

40

99.8² = (100 - 0.2)² = 10000 - 2(100)(0.2) + 0.04 = 10000 - 40 + 0.04 ⇒ **K = 40**।

Q69 **Ans (b)**

$\frac{1}{8}$

अंश = 0.2³(1 + 0.2³), हर = 0.4³(1 + 0.2³) ⇒ (0.2/0.4)³ = **1/8**।

Q70 **Ans (b)**

$5\sqrt[3]{2}$

∛54 = 3∛2, ∛128 = 4∛2, ∛16 = 2∛2 ⇒ (3 + 4 - 2)∛2 = **5∛2**।

Q71 **Ans (c)**

0.018

a = 0.02, b = 0.002 ⇒ हर = a² + ab + b² ⇒ a - b = **0.018**।

Q72 **Ans (d)**

0.48

0.768 ÷ 1.6 = **0.48**।

Q73 **Ans (d)**

0.96

0.9604 = 0.98², 0.0196 = 0.98 × 0.02, 0.0004 = 0.02² ⇒ a - b = **0.96**।

Q74 **Ans (a)**

$-2\sqrt{5}$

11 - 2√30 = (√6 - √5)² ⇒ (√6 - √5) - (√6 + √5) = **-2√5**।

Q75 **Ans (b)**

0.01

p = 0.13 ÷ 13 = **0.01**।

Q76 **Ans (b)**

-0.1

a = 0.1, b = 0.2 ⇒ (a³ - b³)/(a² + ab + b²) = a - b = **-0.1**।

Q77 **Ans (a)**

$-2\sqrt{3}$

7 - 4√3 = (2 - √3)² ⇒ √(...) = 2 - √3, व्युत्क्रम 2 + √3 ⇒ अंतर = **-2√3**।

Q78 **Ans (b)**

800

अंश = 3.6 × 0.48 × 2.5 = 4.32; हर = 0.12 × 0.09 × 0.5 = 0.0054 ⇒ 4.32/0.0054 = **800**।

Q79 **Ans (c)**

$4\frac{2}{11}$

23/7 × 7/3 ÷ 11/6 = 23/3 × 6/11 = 46/11 = **4 2/11**।

Q80 **Ans (b)**

$\frac{19}{8}$

2 - 1/2 = 3/2 → 2 + 2/3 = 8/3 → 1/(8/3) = 3/8 ⇒ 2 + 3/8 = **19/8**।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 03

Average

Simple Average · Replacement · Weighted Average

20	1	1	4
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Average

01 Deviation method
एक अनुमानित औसत लेकर विचलन जोड़ें — बड़ी संख्याओं में समय बचता है।

02 नया सदस्य आने/जाने पर
नया व्यक्ति = पुराना औसत ± (कुल सदस्य × औसत में बदलाव)।

03 क्रमागत संख्याएँ
विषम संख्या में पद हों तो औसत = बीच वाला पद; AP का औसत = (पहला + अंतिम)/2।

04 ग़लत पढ़ी संख्या
सही औसत = पुराना औसत + (सही − ग़लत)/n।

Mock Set 01 Q1–Q20 · 30 Sep → 28 Oct

TOPIC · Average

Q1 What is the average of the first 20 positive multiples of 7?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 70.5 (b) 71.5 (c) 73.5 (d) 77

Q2 The average age of a group consisting of 10 students and their teacher is 15 years. When the teacher's age is excluded, the average age of the students decreases by 1 year. Determine the age of the teacher.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 35 years (b) 25 years (c) 55 years (d) 65 years

Q3 The average of 15 numbers is 72. The average of the first 8 numbers is 69, while the average of the last 6 numbers is 75. What is the ninth number?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 66 (b) 72 (c) 78 (d) 84

Q4 The average monthly expenditure of 36 families in a housing complex is Rs25,000. If 9 families, whose average expenditure is 40% higher than the overall initial average, move out, what is the percentage decrease in the overall average expenditure of the remaining families?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 8.00% (b) 10.00% (c) 12.50% (d) 13.33%

Q5 Given that the average of seven consecutive numbers is 20, determine the largest of these numbers.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 24 (b) 23 (c) 32 (d) 45

Q6 A man spends Rs1800 per month on average for the first four months and Rs2000 per month for the next eight months. If he saves Rs5600 in a year, find his average monthly income.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) Rs1200 (b) Rs4500 (c) Rs6500 (d) Rs2400

Q7 A class of 24 students has an average weight of 35 kg. When the teacher's weight is included, the average increases by 400 grams. Determine the teacher's weight.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 45 kg (b) 65 kg (c) 35 kg (d) 55 kg

Q8 The average weight of 15 players in a cricket team is 68 kg. If the captain, whose weight is 80 kg, is replaced by a new player, the average weight of the team drops by 0.8 kg. What is the weight of the new player?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 56 kg (b) 68 kg (c) 72 kg (d) 92 kg

Q9 Given that the average of five numbers is 27, and that excluding one number reduces the average to 25, determine the value of the excluded number.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 45 (b) 35 (c) 55 (d) 65

Q10 The average of 5 numbers is 20. If each number is multiplied by 2, what will be the new average?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 30 (b) 40 (c) 20 (d) 10

Q11 A student's average marks in 8 tests were 74. To achieve an average of at least 76 after 9 tests, what minimum marks must the student score in the ninth test?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 76 (b) 90 (c) 92 (d) 94

Q12 The average of n consecutive multiples of 11 is 143. If the difference between the largest and the smallest number in the set is 132, find the value of n.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 10 (b) 11 (c) 12 (d) 13

Q13 The average of 7 numbers is 30. If the average of the first three numbers is 25 and the average of the last three numbers is 35, what is the value of the fourth number?

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 40 (b) 30 (c) 50 (d) 60

Q14 In a society, men, women and children live. The average ages of men, women, and children are 48, 42, and 12, respectively. The average age of men and women is 46, while the average age of women and children is 30. So what will be the average age of children and men?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 24 years (b) 39 years (c) 42 years (d) 45 years

Q15 Given that the average of five numbers is 27, and that excluding one number results in an average of 25 for the remaining four numbers, determine the value of the excluded number.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 45 (b) 35 (c) 55 (d) 75

Q16 If the average temperature for Monday, Tuesday, and Wednesday was 40°C. The average for Tuesday, Wednesday, and Thursday was 40°C. If the temperature on Thursday was 40°C, what was the temperature on Monday?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 50°C (b) 40°C (c) 30°C (d) 20°C

Q17 The average of 20 numbers was calculated as 35. It was later discovered that a number 85 was misread as 45. What is the correct average?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 54 (b) 37 (c) 24 (d) 47

Q18 The average of 5 consecutive multiples of 7 is 84. What is the largest multiple in this sequence?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 70 (b) 91 (c) 98 (d) 105

Q19 The average weight of 8 persons increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What is the weight of the new person?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 75 kg (b) 85 kg (c) 65 kg (d) 45 kg

Q20 Given that the average of four consecutive even numbers is 15, determine the second largest number in the sequence.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 12 (b) 16 (c) 14 (d) 18

ANSWER KEY · Mock Set 01				
1 (c)	2 (b)	3 (c)	4 (d)	5 (b)
6 (d)	7 (a)	8 (b)	9 (b)	10 (b)
11 (c)	12 (d)	13 (b)	14 (b)	15 (b)
16 (b)	17 (b)	18 (c)	19 (b)	20 (b)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (c)

73.5

पहले 20 गुणज: 7, 14, ..., 140। औसत = 7 × (1 + 20)/2 = 7 × 10.5 = **73.5**।

Q2 Ans (b)

25 years

11 लोगों का कुल = 11 × 15 = 165। छात्रों का नया औसत 14 ⇒ कुल 10 × 14 = 140।
शिक्षक की आयु = 165 - 140 = **25 वर्ष**।

Q3 Ans (c)

78

कुल = 15 × 72 = 1080; पहले 8 = 8 × 69 = 552; अंतिम 6 = 6 × 75 = 450।
9वीं संख्या = 1080 - 552 - 450 = **78**।

Q4 Ans (d)

13.33%

कुल = 36 × 25000 = 9,00,000। जाने वाले 9 परिवारों का औसत = 25000 × 1.4 = 35000 ⇒ कुल 3,15,000।
बचे 27 का औसत = 5,85,000/27 = 21,666.67। कमी = 3333.33/25000 × 100 = **13.33%**।

Q5 Ans (b)

23

7 क्रमागत संख्याओं में औसत = बीच की (चौथी) संख्या = 20। सबसे बड़ी = 20 + 3 = **23**।

Q6 Ans (d)

Rs2400

कुल ख़र्च = 4 × 1800 + 8 × 2000 = 23,200। कुल आय = 23,200 + 5,600 = 28,800।
औसत मासिक आय = 28,800/12 = **Rs 2400**।

Q7 Ans (a)

45 kg

नया औसत = 35.4 kg (25 लोग)। शिक्षक = 25 × 35.4 - 24 × 35 = 885 - 840 = **45 kg**।

Q8 Ans (b)

68 kg

कुल वज़न में कमी = 15 × 0.8 = 12 kg। नया खिलाड़ी = 80 - 12 = **68 kg**।

Q9 Ans (b)

35

5 × 27 - 4 × 25 = 135 - 100 = **35**।

Q10 Ans (b)

40

हर संख्या को 2 से गुणा करने पर औसत भी 2 गुना: 20 × 2 = **40**।

Q11 Ans (c)

92

ज़रूरी कुल = 9 × 76 = 684; अब तक = 8 × 74 = 592। 9वें टेस्ट में कम से कम **92** अंक।

Q12 Ans (d)

13

सबसे बड़ी - सबसे छोटी = 11(n - 1) = 132 ⇒ n - 1 = 12 ⇒ **n = 13**।

Q13 Ans (b)

30

चौथी संख्या = 7 × 30 - 3 × 25 - 3 × 35 = 210 - 75 - 105 = **30**।

Q14 Ans (b)

39 years

पुरुष व महिला: 48m + 42w = 46(m + w) ⇒ 2m = 4w ⇒ m = 2w।
महिला व बच्चे: 42w + 12c = 30(w + c) ⇒ 12w = 18c ⇒ w = 1.5c ⇒ m = 3c।
पुरुष व बच्चों का औसत = (48 × 3c + 12c)/(4c) = 156/4 = **39 वर्ष**।

Q15 Ans (b)

35

5 × 27 - 4 × 25 = 135 - 100 = **35**।

Q16 Ans (b)

40°C

M + T + W = 120 और T + W + Th = 120 ⇒ M = Th = **40°C**।

Q17 **Ans (b)**

37

सही कुल = 20 × 35 + (85 - 45) = 740 ⇒ सही औसत = 740/20 = **37**।

Q18 **Ans (c)**

98

बीच वाला = 84 ⇒ गुणज 70, 77, 84, 91, 98 ⇒ सबसे बड़ा **98**।

Q19 **Ans (b)**

85 kg

नया व्यक्ति = 65 + 8 × 2.5 = **85 kg**।

Q20 **Ans (b)**

16

संख्याएँ 12, 14, 16, 18 (औसत 15)। दूसरी सबसे बड़ी = **16**।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 04

Percentage

Percentage Change · Successive Change · Population & Income

22	1	1	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Percentage

01 भिन्न-प्रतिशत
1/6 = 16⅔%, 1/7 = 14 2/7%, 1/8 = 12½%, 1/9 = 11 1/9%, 1/11 = 9 1/11% — ये तुरंत भिन्न में बदलें।

02 Successive change
a% और b% का कुल प्रभाव = a + b + ab/100।

03 कीमत × मात्रा = ख़र्च
कीमत x% बढ़े और ख़र्च y% बदले तो (1 + x)(1 − r) = 1 + y से मात्रा का बदलाव r निकालें।

04 चुनाव के प्रश्न
पहले वैध वोट निकालें: कुल × (डाले %) × (वैध %); फिर अंतर = (जीत% − हार%) × वैध।

05 Venn प्रतिशत
कम से कम एक = A + B + C − (दो-दो) + (तीनों); कोई नहीं = 100 − यह।

Mock Set 01 Q1–Q22 · 30 Sep → 24 Oct

TOPIC · Percentage

Q1 In an election, 10% of the voters did not vote, while 150 votes were found to be invalid. There were only two candidates. The winner secured 55% of the total voters and defeated the opponent by 1100 votes. Find the total number of voters.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 5360 (b) 6230 (c) 3440 (d) 4750

Q2 In a corporate shareholder election, 60% of the voters were male, and the rest were female. 40% of the male voters and 70% of the female voters voted for Proposal A. If the total number of voters who did not vote for Proposal A is 1,200, find the total number of shareholders who cast a vote.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 2,400 (b) 2,500 (c) 2,600 (d) 2,800

Q3 During an industrial quality audit, a software-driven flowmeter is found to have two independent calibration defects. First, the automated sensor over-reports the base volume of fluid by 12%. Second, the digital processing unit adds an additional error that over-reports the displayed sensor value by another 5%. If the digital output screen prints a metric reading of "235.2 Litres" for a test tank, what is the actual, true volume of fluid inside?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 160 litres (b) 180 litres (c) 200 litres (d) 220 litres

Q4 During an election, 18% of the voters did not vote and 72 voters cast invalid votes. There were only two candidates. The winner obtained 51% of the total voters and won by 432 votes. Find the total number of voters.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 1200 (b) 2400 (c) 3200 (d) 1800

Q5 The manufacturing cost of an electric drone is split between specialized microchips and lightweight composite casing in a 4:1 ratio. Due to supply chain improvements, microchip costs decrease by 15%, while global material shortages cause the composite casing costs to surge by 40%. What is the net percentage change in the total manufacturing cost of the drone?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 2% increase (b) 4% decrease (c) 3% decrease (d) 6% increase

Q6 In a municipal election between two candidates, 10% of the citizens on the voter list did not cast their votes. Out of the total votes cast, 10% were declared invalid. The winning candidate secured 54% of the valid votes and won by a majority of 1,620 votes. Find the total number of citizens registered on the voter list.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 20,000 (b) 22,500 (c) 25,000 (d) 27,000

Q7 An electronics manufacturer decreases the selling price of its flagship smartphone by 20%. As a result, the volume of daily sales increases by x%. If the overall daily revenue generated by the smartphone increases by 12%, find the value of x.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 38 (b) 30 (c) 44 (d) 40

Q8 Among the employees of a company, 52% attend programme A, 46% attend B and 38% attend C. Also, 22% attend both A and B, 18% attend both B and C, 16% attend both C and A and 8% attend all three. Each pairwise percentage includes those attending all three. If 240 employees attend none of the programmes, how many employees are there in the company?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 1,800 (b) 2,000 (c) 2,200 (d) 2,400

Q9 To control a localized food crisis, a government mandates an anti-hoarding policy that artificially forces down the wholesale price of rice by 15%. A commercial wholesaler wants to ensure that their total daily sales revenue increases by exactly 2% despite this price cut. By what percentage must the wholesaler increase the volume of rice they sell each day?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 17% (b) 13% (c) 20% (d) 19%

Q10 The population of a tech hub increases by $16\frac{2}{3}\%$ in the first year, decreases by $12\frac{1}{2}\%$ in the second year, and increases by $14\frac{2}{7}\%$ in the third year. If the population at the end of the third year is 2,80,000, what was the initial population before the first year?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 2,25,000 (b) 2,10,000 (c) 2,50,000 (d) 2,40,000

Q11 In a three-candidate election, 90% of registered voters vote and 4% of votes cast are invalid. Initially, the winner, runner-up and third candidate receive 45%, 35% and 20% of valid votes. If 10% of the third candidate's votes are transferred to the runner-up, the winner's lead becomes 5,184 votes. How many voters are registered?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 70,000 (b) 72,000 (c) 75,000 (d) 80,000

Q12 A corporate consultant is taxed under a progressive annual income model: • Earnings up to Rs10,00,000 are taxed at a base rate of 10%. • Any earnings exceeding Rs10,00,000 are taxed at a higher rate of 25%. If the consultant paid a total annual income tax of exactly Rs2,50,000, what percentage of their total gross income was paid as tax?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 12.505% (b) 18.625% (c) 10.025% (d) 15.625%

Q13 In an election, 10% of voters did not vote, and 150 votes were found invalid. There were only two candidates. The winner secured 55% of the total voters and defeated the opponent by 1100 votes. Find the total number of voters.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 4750 (b) 5240 (c) 3770 (d) 6320

Q14 A technology incubator filters down an initial cohort of tech startups over a multi-stage funding cycle. • In the first screening phase, 30% of the total startups are eliminated. • In the second phase, 25% of the remaining startups fail to build a viable prototype and are dropped. • In the final venture round, 20% of the then-remaining startups are rejected due to compliance errors. If exactly 42 startups successfully clear all three evaluation stages and secure institutional funding, how many startups were in the initial incubator cohort?

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 100 (b) 90 (c) 110 (d) 150

Q15 The total manufacturing cost of an item is distributed among the factors - material sourcing, assembly labor and plant overheads - in the ratio 4:3:2. Due to shifting economic factors, material costs increase by 10%, assembly labor costs jump by 20% but plant overheads are successfully reduced by 5%. If these combined changes result in a net increase of Rs. 180 in the final manufacturing cost, find the initial total cost of manufacturing.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) Rs. 3600 (b) Rs. 2700 (c) Rs. 1800 (d) Rs. 900

Q16 A test has 90 questions: 10 numerical, 35 reasoning and 45 general-awareness questions. A candidate answers 80%, 60% and 60% of the respective sections correctly. With no negative marking, at least 70% of all questions must be correct to qualify. What is the minimum number of additional wrong answers that must be corrected?

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 7 (b) 6 (c) 8 (d) 9

Q17 A commercial bakery faces a supply chain shock that increases the market price of organic flour by 25%. The bakery's management decides they can only absorb an absolute increase of 5% on their total procurement expenditure for this raw material. By what percentage must the bakery reduce its consumption volume of organic flour to stay within this strict budget constraint?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 20% (b) 16% (c) 25% (d) 10%

Q18 Rohit spends 25% of his annual income on groceries, 30% on rent, and 20% on miscellaneous expenses. If his yearly savings are Rs75,600, find his annual income.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) Rs2,52,800 (b) Rs1,24,000 (c) Rs3,02,400 (d) Rs4,30,60

Q19 If $\frac{3}{4}$ of a number is 72, then what is $\frac{2}{3}$ of that same number?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 54 (b) 64 (c) 74 (d) 84

Q20 Sixty per cent of Anil's monthly income is equal to seventy-five per cent of Sunil's monthly income. If Anil's income is reduced by Rs300 while Sunil's income remains unchanged, the ratio of their new incomes becomes 7: 6. Find Sunil's monthly income.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) Rs2900 (b) Rs5000 (c) Rs3600 (d) Rs4200

Q21 A family initially allocates 28% of its income to food, 24% to housing, 12% to transport, 16% to other expenses and saves the rest. Its income then rises by 25%; food expense rises by 15%, housing expense by 12.5%, transport expense falls by 10% and the amount saved rises by 50%. If the entire new income is accounted for, by what percentage does the amount spent on other expenses rise?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 52.25% increase (b) 55% increase
(c) 56.25% increase (d) 60% increase

Q22 A car worth Rs5,00,000 depreciates at 8% in the first year, 12% in the second year, and 10% in the third year. Find its value after 3 years.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) Rs4,45,391 (b) Rs1,34,381 (c) Rs3,64,320 (d) Rs2,37,634

ANSWER KEY · Mock Set 01

1 (d)	2 (b)	3 (c)	4 (d)	5 (b)
6 (c)	7 (d)	8 (b)	9 (c)	10 (d)
11 (c)	12 (d)	13 (a)	14 (a)	15 (c)
16 (a)	17 (b)	18 (c)	19 (b)	20 (c)
21 (c)	22 (c)			

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (d)**

4750

कुल मतदाता = V। डाले गए = 0.9V, वैध = 0.9V − 150। विजेता = 0.55V ⇒ हारने वाला = 0.35V − 150।

अंतर: 0.55V − (0.35V − 150) = 0.2V + 150 = 1100 ⇒ **V = 4750**।

Q2 **Ans (b)**

2,500

Proposal A के विरुद्ध: पुरुष 60% × 60% = 36%, महिला 40% × 30% = 12% ⇒ कुल 48%।

48% = 1200 ⇒ कुल वोट = **2,500**।

Q3 **Ans (c)**

200 litres

दिखाया मान = वास्तविक × 1.12 × 1.05 = वास्तविक × 1.176।

वास्तविक = 235.2/1.176 = **200 litres**।

Q4 **Ans (d)**

1800

वैध = 0.82V − 72; विजेता = 0.51V; हारने वाला = 0.31V − 72।

0.2V + 72 = 432 ⇒ **V = 1800**।

Q5 **Ans (b)**

4% decrease

लागत 4 : 1 ⇒ 80 और 20 लें। नई लागत = 80 × 0.85 + 20 × 1.4 = 68 + 28 = 96।

कुल परिवर्तन = **4% कमी**।

Q6 **Ans (c)**

25,000

डाले गए = 0.9V; वैध = 0.9 × 0.9V = 0.81V। अंतर = (54 − 46)% of वैध = 0.08 × 0.81V = 0.0648V।

0.0648V = 1620 ⇒ **V = 25,000**।

Q7 **Ans (d)**

40

Revenue = कीमत × बिक्री ⇒ 0.8 × (1 + x/100) = 1.12 ⇒ 1 + x/100 = 1.4 ⇒ **x = 40**।

Q8 **Ans (b)**

2,000

कम से कम एक programme = 52 + 46 + 38 − 22 − 18 − 16 + 8 = 88%।

कोई नहीं = 12% = 240 ⇒ कुल कर्मचारी = **2,000**।

Q9 **Ans (c)**

20%

0.85 × (1 + x) = 1.02 ⇒ 1 + x = 1.2 ⇒ बिक्री **20%** बढ़ानी होगी।

Q10 **Ans (d)**

2,40,000

16⅔% = 1/6 ⇒ ×7/6; 12½% = 1/8 ⇒ ×7/8; 14 2/7% = 1/7 ⇒ ×8/7।

कुल गुणक = 7/6 × 7/8 × 8/7 = 7/6 ⇒ प्रारंभिक = 2,80,000 × 6/7 = **2,40,000**।

Q11 **Ans (c)**

75,000

वैध वोट = 0.9 × 0.96 V = 0.864V। तीसरे के 20% में से 10% (= वैध का 2%) runner-up को ⇒ runner-up 37%।

अंतर = 45% − 37% = 8% of 0.864V = 0.06912V = 5184 ⇒ **V = 75,000**।

Q12 **Ans (d)**

15.625%

पहले 10 लाख पर कर = 1,00,000। बाकी 1,50,000 कर 25% दर पर ⇒ अतिरिक्त आय = 6,00,000।

कुल आय = 16,00,000 ⇒ 2,50,000/16,00,000 = **15.625%**।

Q13 **Ans (a)**

4750

वैध = 0.9V − 150, विजेता 0.55V, हारने वाला 0.35V − 150 ⇒ 0.2V + 150 = 1100 ⇒ **V = 4750**।

Q14 **Ans (a)**

100

x × 0.7 × 0.75 × 0.8 = 0.42x = 42 ⇒ **x = 100**।

Q15 **Ans (c)**

Rs. 1800

अनुपात 4 : 3 : 2 (कुल 9 भाग)। बदलाव = 4(10%) + 3(20%) − 2(5%) = 0.4 + 0.6 − 0.1 = 0.9 भाग = कुल का 10%।

10% = Rs 180 ⇒ प्रारंभिक लागत = **Rs 1800**।

Q16 **Ans (a)**

7

सही उत्तर = 80% of 10 + 60% of 35 + 60% of 45 = 8 + 21 + 27 = 56।

चाहिए 70% of 90 = 63 ⇒ और **7** सही करने होंगे।

Q17 **Ans (b)**

16%

ख़र्च = कीमत × मात्रा ⇒ 1.25 × (1 − r) = 1.05 ⇒ 1 − r = 0.84 ⇒ खपत **16%** घटानी होगी।

Q18 **Ans (c)**

Rs3,02,400

बचत = 100 - (25 + 30 + 20) = 25% = Rs 75,600 ⇒ आय = **Rs 3,02,400**।

Q19 **Ans (b)**

64

संख्या = 72 × 4/3 = 96 ⇒ 2/3 × 96 = **64**।

Q20 **Ans (c)**

Rs3600

0.6A = 0.75S ⇒ A = 1.25S। (1.25S - 300)/S = 7/6 ⇒ 7.5S - 1800 = 7S ⇒ **S = Rs 3600**।

Q21 **Ans (c)**

56.25% increase

आय 100 मानें ⇒ नई आय 125। भोजन 28 → 32.2, आवास 24 → 27, परिवहन 12 → 10.8, बचत 20 → 30।
अन्य = 125 - (32.2 + 27 + 10.8 + 30) = 25। वृद्धि = (25 - 16)/16 × 100 = **56.25%**।

Q22 **Ans (c)**

Rs3,64,320

5,00,000 × 0.92 × 0.88 × 0.90 = **Rs 3,64,320**।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 05

Ratio & Proportion

Ratio · Proportion · Ages · Coins & Distribution

32	1	1	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Ratio & Proportion

01 अनुपात जोड़ना
A : B और B : C में B को LCM से बराबर करें, फिर A : B : C लिखें।

02 Mean / Third proportional
a और b का mean proportional = √(ab); third proportional = b^2/a।

03 x% of A = y% of B
A/B = y/x — सीधे अनुपात बन जाता है।

04 Variation
$x \propto 1/y^2$ हो तो xy^2 = स्थिर; कीमत $\propto h \cdot t^2$ हो तो अनुपात गुणा करके तुलना करें।

05 Coins
मूल्य अनुपात ÷ coin का मूल्य = संख्या अनुपात।

Mock Set 01 Q1–Q32 · 30 Sep → 28 Oct

TOPIC · Ratio and Proportion

Q1 An amount of Rs33,630 is distributed among A, B, and C. The ratio of A's share to B's share is 3 : 7, and the ratio of B's share to C's share is 6 : 5. Find the amount of money received by B.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) Rs13,290 (b) Rs14,868 (c) Rs15,327 (d) Rs16,409

Q2 When x is subtracted from each of 20, 28, 25, and 35, the numbers so obtained are in proportion. Find the mean proportional between (x + 2) and (3x + 1).

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) $\sqrt{3}$ (b) $3\sqrt{2}$ (c) $2\sqrt{3}$ (d) $\sqrt{2}$

Q3 Find the mean proportional between 0.81 and 4.41. (Round off to one decimal place.)

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 2.1 (b) 3.6 (c) 4.7 (d) 1.9

Q4 40% of Asha's income is equal to 50% of Neha's income. If Asha's income is reduced by Rs200, while Neha's income remains unchanged, the ratio of their new incomes becomes 3: 4. Find Neha's income.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) Rs350 (b) Rs700 (c) Rs630 (d) Rs400

Q5 If A : B = 5 : 6 and B : C = 10 : 9, find A : B : C.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 25:30:27 (b) 15:20:9 (c) 10:15:17 (d) 25:40:19

Q6 In a school internal examination of six different subjects, Nishtha scores 64% of the total marks. Nishtha's marks in each subject (separately) are in the ratio 6 : 7 : 9 : 12 : 8 : 6. The maximum marks possible in each subject is the same. As per the rules of the examination, one needs to score 55% in any subject to pass in that subject. In how many subjects in this examination has Nishtha scored below the pass marks?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 0 (b) 1 (c) 2 (d) 3

Q7 Find the mean proportional between 0.64 and 2.56. (Round your answer to one decimal place.)

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 2.5 (b) 1.3 (c) 4.4 (d) 3.2

Q8 Aman and Rohit have two glasses of equal volume. Both contain some milk. Aman says to Rohit, "Give me one-third of the milk in your glass so that my glass becomes full." Rohit says to Aman, "Instead, you give me one-fifth of the milk in your glass so that my glass becomes full." Find the ratio of the milk in their glasses.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 2:3 (b) 5:6 (c) 4:7 (d) 7:5

Q9 An e-commerce warehouse has three different models of automated sorting robots - Alpha, Beta and Gamma. The ratio of the number of Alpha robots to that of Beta robots in the warehouse is 3:4 and the ratio of the number of Beta robots to that of Gamma robots is 2:3. The individual sorting speed (parcels sorted per hour per single robot) of an Alpha, a Beta and a Gamma robot is 5:3:2. During a scheduled maintenance hour, half of the Alpha robots and one-third of the Gamma robots are sent for servicing, while all the Beta robots are totally operational. Assuming all active robots work at their exact designated sorting speeds throughout, it is found that the total number of parcels sorted by all the active Beta robots is 180 more than those sorted by all the active Alpha robots, during this maintenance hour. During a standard operational hour (when all robots of all the three types are active), what is the total number of parcels sorted by all the warehouse robots combined?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 1500 (b) 1560 (c) 1600 (d) 1650

Q10 In an examination, the ratio of the number of students who passed the examination to those who couldn't pass is 25:4. If 5 more students had appeared and the number of students who couldn't pass had been 2 less than the original number, the ratio of passed students to failed students would have been 22:3. Find the total number of students who originally appeared for the examination.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 87 (b) 116 (c) 145 (d) 174

Q11 Find the third proportional of $(\sqrt{2}+\sqrt{3})$ and $4\sqrt{6}$.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) $14(\sqrt{3}-\sqrt{2})$ (b) $42(\sqrt{3}+\sqrt{2})$
(c) $96(\sqrt{3}-\sqrt{2})$ (d) $28(\sqrt{3}+\sqrt{2})$

Q12 Three siblings, namely Kamal, Rupa and Drishti, have different amounts of money with them which add up to Rs. 66000. On a particular day, they decide to go shopping and spend 54%, 40% and $66\frac{2}{3}\%$ from their individual amounts, respectively. If the ratio of the amounts of money left with them after shopping, respectively, is 23:33:20, how much money did Drishti have before shopping?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) Rs. 20000 (b) Rs. 22000 (c) Rs. 24000 (d) Rs. 26000

Q13 48% of Rahul's income is equal to 64% of Mohit's income. If Rahul's income is reduced by Rs480, and Mohit's income does not change, the ratio of their incomes becomes 4: 5. Find Mohit's income.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) Rs740 (b) Rs900 (c) Rs860 (d) Rs690

Q14 Sharanya's bag has 50-paise, 25-paise and 10-paise coins. The ratio of the total monetary value of the 50-paise to the 25- paise coins is 3:2. The ratio of the total number of 25-paise coins to 10-paise coins is 4:5. If the total number of coins in the bag is 480, calculate the total monetary value of all the coins in the bag.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) Rs. 160 (b) Rs. 150 (c) Rs. 130 (d) Rs. 120

Q15 In villages P and Q, women constitute $\frac{3}{7}$ and $\frac{5}{12}$ of their respective populations. The number of men in Q is 20% greater than the number of men in P. If the two villages together contain 3,150 women, what is the total population of village P?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 3,430 (b) 3,360 (c) 3,500 (d) 3,600

Q16 What is the mean proportional between $12-4\sqrt{2}$ and $3+\sqrt{2}$?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) $2\sqrt{7}$ (b) $3\sqrt{5}$ (c) $6\sqrt{7}$ (d) $7\sqrt{5}$

Q17 Riya and Supriti have two glasses of equal volume. Both have some milk in their glasses. Riya says to Supriti, "Give me half of the milk in your glass so that my glass will be full of milk." Supriti says to Riya, "Instead, you give me one-fourth of the milk in your glass so that my glass will be full of milk." Find the ratio of volumes of milk in their glasses.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 1:3 (b) 3:4 (c) 2:3 (d) 1:2

Q18 Find the mean proportional between $9 - 3\sqrt{2}$ and $6 + 2\sqrt{2}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) $\sqrt{53}$ (b) $\sqrt{38}$ (c) $\sqrt{42}$ (d) $\sqrt{61}$

Q19 Boxes A, B and C initially contain items in the ratio 3 : 4 : 5. A gives one-third of its items to B; B then gives one-fourth of its new total to C. What is the final ratio A : B : C?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 8 : 20 : 24 (b) 6 : 15 : 25 (c) 8 : 15 : 25 (d) 8 : 15 : 20

Q20 If a: b: c = 3: 4: 5 and a + 2b + c = 48, find the value of c.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 10 (b) 12 (c) 15 (d) 18

Q21 The variable x is inversely proportional to the square of y. If x = 45 when y = 3, find the value of x when y = 9.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 10 (b) 12 (c) 6 (d) 5

Q22 A prize fund is divided among P, Q and R directly in proportion to the squares of their scores and inversely in proportion to their ages. Their scores are in the ratio 2 : 3 : 4 and their ages in the ratio 3 : 4 : 5. If R receives Rs33,600 more than P, how much does Q receive?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) Rs 38,400 (b) Rs39,600 (c) Rs40,000 (d) Rs40,500

Q23 If x: y: z = 3: 5: 7 and x + y + z = 75, find the value of y.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 35 (b) 20 (c) 40 (d) 25

Q24 Basket A contains chits of four different colours - pink, violet, green and blue in the ratio 2 : 3 : 7 : 9, respectively, while basket B contains chits in the ratio 5 : 6 : 3 : 10 (colours being in the same mentioned order), respectively. All the chits in these two baskets are mixed and kept in a third basket C. If there are 54 green chits and 42 violet chits in C, find the number of pink chits in basket A and the number of blue chits in basket B before the transfer, respectively.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 20, 54 (b) 20, 40 (c) 12, 54 (d) 12, 40

Q25 If A : B = 3 : 5 and A : C = 6 : 7, then B : C is:

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 7:10 (b) 5:7 (c) 10:7 (d) 7:5

Q26 What must be added to each term of the ratio 5: 9 to make it equal to 2: 3?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 6 (b) 8 (c) 3 (d) 5

Q27 Raunaq makes beautiful earthen vases and sells them. The price of each of these vases varies directly as the height, if they are of the same (material) thickness, and the price also varies directly as the square of the thickness if their heights are the same. A customer wants to buy two vases from Raunaq whose prices are in the ratio 28:81. If the ratio of the heights of these two vases is 16:7, respectively, find the ratio of their thicknesses.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 4:7 (b) 4:9 (c) 7:9 (d) 7:18

Q28 If a : b = 2 : 3 and b : c = 4 : 5, find $a^2 : b^2 : bc$.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 16:36:40 (b) 16:36:45 (c) 15:36:45 (d) 16:30:45

Q29 Three competing startups - A, B and C - generate annual revenues in the ratio of 7:9:12. Their annual operating expenditures are in the ratio 8:9:15, respectively. If A saves 1/4th of its annual revenue as profit, what is the ratio of the annual profits of A, B and C, respectively?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 65:99:70 (b) 56:90:67 (c) 60:68:65 (d) 56:99:69

Q30 The monthly incomes of A, B and C are in the ratio 4 : 9 : 11, while their expenditures are in the ratio 5 : 7 : 8. A earns Rs32,000 and saves Rs12,000. What is the combined monthly saving of B and C?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) Rs1,00,000 (b) Rs96,000 (c) Rs98,000 (d) Rs1,02,000

Q31 The total wages paid to all technicians and all assistants are in the ratio 7 : 9, while the wage per technician and per assistant is in the ratio 5 : 6. If there are 203 employees altogether, how many are technicians?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 98 (b) 91 (c) 105 (d) 112

Q32 Warehouses A and B initially contain items in the ratio 5 : 7, with defect rates of 4% and 10%, respectively. One-fifth of B's entire stock is transferred to A and the transferred stock retains B's defect composition. What is the ratio of non-defective items in A to those remaining in B?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 84 : 101 (b) 101 : 86 (c) 202 : 169 (d) 101 : 84

ANSWER KEY · Mock Set 01

1 (b)	2 (d)	3 (d)	4 (d)	5 (a)
6 (c)	7 (b)	8 (b)	9 (b)	10 (c)
11 (c)	12 (c)	13 (b)	14 (d)	15 (a)
16 (a)	17 (c)	18 (c)	19 (c)	20 (c)
21 (d)	22 (d)	23 (d)	24 (d)	25 (c)
26 (c)	27 (d)	28 (b)	29 (d)	30 (a)
31 (a)	32 (d)			

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (b)

Rs14,868

A : B = 3 : 7 = 18 : 42, B : C = 6 : 5 = 42 : 35 ⇒ A : B : C = 18 : 42 : 35 (कुल 95)।

B = 33,630 × 42/95 = 354 × 42 = **Rs 14,868**।

Q2 Ans (d)

$\sqrt{2}$

(20 − x)/(28 − x) = (25 − x)/(35 − x) ⇒ 700 − 55x = 700 − 53x ⇒ x = 0।

2 और 1 का mean proportional = √(2 × 1) = **√2**।

Q3 Ans (d)

1.9

√(0.81 × 4.41) = 0.9 × 2.1 = 1.89 ≈ **1.9**।

Q4 Ans (d)

Rs400

0.4A = 0.5N ⇒ A = 1.25N। (1.25N − 200)/N = 3/4 ⇒ 0.5N = 200 ⇒ **N = Rs 400**।

Q5 Ans (a)

25:30:27

A : B = 5 : 6 = 25 : 30, B : C = 10 : 9 = 30 : 27 ⇒ **25 : 30 : 27**।

Q6 Ans (c)

2

हर विषय के अधिकतम अंक M। कुल अंक = 6M का 64% = 3.84M = 48 भाग ⇒ 1 भाग = 0.08M।

पास के लिए 0.55M चाहिए = 6.875 भाग। 6 भाग वाले **2 विषयों** में अंक कम हैं।

Q7 Ans (b)

1.3

√(0.64 × 2.56) = 0.8 × 1.6 = 1.28 ≈ **1.3**।

Q8 Ans (b)

5:6

क्षमता V: A + R/3 = V और R + A/5 = V ⇒ A + R/3 = R + A/5 ⇒ 4A/5 = 2R/3।

A/R = (2/3) × (5/4) = **5 : 6**।

Q9 Ans (b)

1560

संख्या A : B : C = 3 : 4 और 2 : 3 ⇒ 3 : 4 : 6 (3k, 4k, 6k)। गति 5 : 3 : 2।

Maintenance में Alpha = 1.5k × 5 = 7.5k, Beta = 4k × 3 = 12k ⇒ अंतर 4.5k = 180 ⇒ k = 40।

सामान्य घंटे में कुल = 3k×5 + 4k×3 + 6k×2 = 39k = **1560**।

Q10 Ans (c)

145

पास = 25k, फेल = 4k। नई स्थिति: कुल +5, फेल 4k − 2 ⇒ पास 25k + 7।

(25k + 7)/(4k − 2) = 22/3 ⇒ 75k + 21 = 88k − 44 ⇒ k = 5। कुल = 29 × 5 = **145**।

Q11 **Ans (c)**

$96(\sqrt{3}-\sqrt{2})$

Third proportional = $b^2/a = (4\sqrt{6})^2/(\sqrt{2}+\sqrt{3}) = 96/(\sqrt{3}+\sqrt{2}) =$ **$96(\sqrt{3}-\sqrt{2})$**।

Q12 **Ans (c)**

Rs. 24000

बचा पैसा: Kamal 46%, Rupa 60%, Drishti 1/3। 0.46K : 0.6R : D/3 = 23 : 33 : 20।

K = 50t, R = 55t, D = 60t ⇒ 165t = 66,000 ⇒ t = 400 ⇒ Drishti = **Rs 24,000**।

Q13 **Ans (b)**

Rs900

0.48R = 0.64M ⇒ R = 4M/3। (4M/3 - 480)/M = 4/5 ⇒ 8M/15 = 480 ⇒ **M = Rs 900**।

Q14 **Ans (d)**

Rs. 120

25p का मूल्य 2v ⇒ संख्या 8v; 50p का मूल्य 3v ⇒ संख्या 6v; 10p की संख्या = 8v × 5/4 = 10v।

24v = 480 ⇒ v = 20। कुल मूल्य = 3v + 2v + 10v × 0.1 = 60 + 40 + 20 = **Rs 120**।

Q15 **Ans (a)**

3,430

P की जनसंख्या 7a ⇒ महिलाएँ 3a, पुरुष 4a। Q के पुरुष = 4.8a = Q की 7/12 ⇒ Q की महिलाएँ = 4.8a × 5/7 = 24a/7।

3a + 24a/7 = 45a/7 = 3150 ⇒ a = 490 ⇒ P = 7 × 490 = **3,430**।

Q16 **Ans (a)**

$2\sqrt{7}$

(12 - 4√2)(3 + √2) = 36 + 12√2 - 12√2 - 8 = 28 ⇒ √28 = **2√7**।

Q17 **Ans (c)**

2:3

R + S/2 = V, S + R/4 = V ⇒ 3R/4 = S/2 ⇒ R : S = **2 : 3**।

Q18 **Ans (c)**

$\sqrt{42}$

(9 - 3√2)(6 + 2√2) = 54 + 18√2 - 18√2 - 12 = 42 ⇒ **√42**।

Q19 **Ans (c)**

8 : 15 : 25

36, 48, 60 लें (×12)। A देता है 12 ⇒ A = 24, B = 60। B देता है 60/4 = 15 ⇒ B = 45, C = 75।

24 : 45 : 75 = **8 : 15 : 25**।

Q20 **Ans (c)**

15

3k + 2(4k) + 5k = 16k = 48 ⇒ k = 3 ⇒ c = **15**।

Q21 **Ans (d)**

5

xy^2 = स्थिर = 45 × 9 = 405 ⇒ y = 9 पर x = 405/81 = **5**।

Q22 **Ans (d)**

Rs40,500

हिस्सा ∝ (score)²/आयु: P = 4/3, Q = 9/4, R = 16/5 ⇒ ×60: 80 : 135 : 192।

R - P = 112 भाग = 33,600 ⇒ 1 भाग = 300 ⇒ Q = 135 × 300 = **Rs 40,500**।

Q23 **Ans (d)**

25

y = 75 × 5/15 = **25**।

Q24 **Ans (d)**

12, 40

A = (2k, 3k, 7k, 9k), B = (5m, 6m, 3m, 10m)। Green: 7k + 3m = 54; Violet: 3k + 6m = 42 ⇒ k + 2m = 14।

हल: m = 4, k = 6 ⇒ A में pink = 12, B में blue = 40 ⇒ **12, 40**।

Q25 **Ans (c)**

10:7

A : B = 6 : 10, A : C = 6 : 7 ⇒ B : C = **10 : 7**।

Q26 **Ans (c)**

3

(5 + x)/(9 + x) = 2/3 ⇒ 15 + 3x = 18 + 2x ⇒ **x = 3**।

Q27 **Ans (d)**

7:18

कीमत ∝ h × t^2 ⇒ 28/81 = (16/7) × $(t_1/t_2)^2$ ⇒ $(t_1/t_2)^2$ = 196/1296 ⇒ $t_1 : t_2$ = 14 : 36 = **7 : 18**।

Q28 **Ans (b)**

16:36:45

a : b : c = 8 : 12 : 15 ⇒ $a^2 : b^2 : bc$ = 64 : 144 : 180 = **16 : 36 : 45**।

Q29 **Ans (d)**

56:99:69

आय 7x, 9x, 12x; ख़र्च 8y, 9y, 15y। A का लाभ: 7x - 8y = 7x/4 ⇒ y = 21x/32।

लाभ (32 से गुणा करके): A = 56x, B = 288x - 189x = 99x, C = 384x - 315x = 69x ⇒ **56 : 99 : 69**।

Q30 **Ans (a)**

Rs1,00,000

A की आय 32,000 = 4 भाग ⇒ 1 भाग = 8000 ⇒ B = 72,000, C = 88,000।

A का ख़र्च 20,000 = 5 भाग ⇒ 1 भाग = 4000 ⇒ B = 28,000, C = 32,000।

B + C की बचत = 44,000 + 56,000 = **Rs 1,00,000**।

Q31 **Ans (a)**

98

संख्या = कुल वेतन / प्रति व्यक्ति वेतन ⇒ 7/5 : 9/6 = 14 : 15।

Technicians = 203 × 14/29 = **98**।

Q32 **Ans (d)**

101 : 84

A = 500 (20 defective, 480 सही), B = 700 (70 defective)। B का 1/5 = 140 (14 defective, 126 सही) A को।

A में सही = 480 + 126 = 606; B में बचे 560 में सही = 504 ⇒ 606 : 504 = **101 : 84**।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 06

Profit & Loss

CP · SP · Profit % · Dishonest Dealer

29	1	1	4
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Profit & Loss

01 समान SP, x% लाभ और x% हानि
हमेशा हानि = $x^2/100$ %।

02 Chain transactions
CP × $(1 + p_1)(1 + p_2)(1 - l_3)$ = अंतिम SP — पीछे से भाग देकर मूल CP निकालें।

03 बेईमान दुकानदार
लाभ% = (दिया गया मूल्य - असल लागत)/असल लागत; 900 g देने पर लागत 0.9 गुना मानें।

04 दो स्थितियों वाले प्रश्न
CP = x मानें; दोनों स्थितियों के SP का अंतर बराबर करके एक समीकरण बनाएँ।

Mock Set 01 Q1–Q29 · 30 Sep → 27 Oct

TOPIC · Profit and Loss

Q1 A dealer sold two sets of headphones for Rs990 each. On one he gained 10% and on the other he lost 10%. Find the total loss or gain percentage.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 1% gain (b) 1% loss
(c) 2% loss (d) No loss or gain

Q2 A shopkeeper marks the price of an article 25% above its cost price. He gives a discount of 10% on the marked price. Find his profit percentage.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 10.5% (b) 15% (c) 12.5% (d) 17%

Q3 The cost price of two articles, A and B, is in the ratio 4 : 5. Article A is sold at a profit of 20% and Article B is sold at a loss of 10%. If the difference between their selling prices is Rs560, find the total cost price of both articles.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) Rs16,500 (b) Rs16,800 (c) Rs18,200 (d) Rs12,700

Q4 If the selling price of an article is tripled, the profit becomes five times the original profit. Find the original profit percentage.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 80% (b) 100% (c) 60% (d) 90%

Q5 An item is sold at 25% profit. If the cost price decreases by 10% and the selling price also decreases by 10%, the new profit percentage will be:

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 45% (b) 25% (c) 35% (d) 65%

Q6 By selling an article for Rs720, a person incurs a loss of 10%. At what price should he sell it to gain 5%?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) Rs750 (b) Rs640 (c) Rs840 (d) Rs650

Q7 A shopkeeper makes 15% profit by selling a book at a certain price. If he charges Rs12 more, he would gain 20%.
What was the original selling price of the book?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) Rs296 (b) Rs250 (c) Rs280 (d) Rs276

Q8 A shopkeeper marks up his goods by 60%. He sells 25% of the stock at the marked price, 50% of the stock at a 20% discount on the marked price, and the remaining stock at a 50% discount on the marked price. Find his overall profit percentage.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 28% (b) 24% (c) 32% (d) 45%

Q9 A shopkeeper gains 25% after allowing a 20% discount on the marked price. By what percentage is the marked price higher than the cost price?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 42.5% (b) 59.66% (c) 56.25% (d) 62.2%

Q10 A trader marks up his goods by 50%. If the cost price increases by 20% and he gives a discount of 10% on the original selling price, find his new approximate profit percentage.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 10.5% (b) 15.5% (c) 12.5% (d) 18.5%

Q11 An item is sold by a manufacturer to a wholesaler at a profit of 10%. Then it is sold by the wholesaler to a retailer at a profit of 20%. The retailer again sells the item to a customer for Rs56,100 at a loss of 15%. Find the cost price of the item to the manufacturer.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) Rs60,000 (b) Rs70,000 (c) Rs50,000 (d) Rs80,000

Q12 A wholesaler allows a discount of 20% on the marked price to a retailer. The retailer sells the item at a 5% discount on the marked price. If the retailer uses a faulty weight that weighs 900g for every 1kg while selling, what is his overall approximate profit percentage?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 42% (b) 56% (c) 74% (d) 32%

Q13 A fruit seller sells apples at a profit of 5%. If he had bought them at 5% less and sold them for Rs1 less, he would have gained 10%. Find the cost price of the apples.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) Rs400 (b) Rs200 (c) Rs600 (d) Rs800

Q14 A shopkeeper sells an article for Rs480, offering a 20% discount. If sold at full price, he would have earned a 25% profit. Find the cost price.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) Rs360 (b) Rs400 (c) Rs540 (d) Rs480

Q15 A shopkeeper prices his items at 25% profit. If the cost price increases by 15% and he wants to maintain a profit of 20% on the new cost, by what percentage should he increase his original selling price?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 15.4% (b) 10.4% (c) 12.6% (d) 18.5%

Q16 A dealer sells two car stereos at Rs9,900 each, achieving a 10% profit on one and incurring a 10% loss on the other. Determine the dealer's overall gain or loss.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) Loss of Rs200 (b) Gain of Rs200
(c) Loss of Rs100 (d) Gain of Rs100

Q17 A shopkeeper marks his goods at 30% above the cost price. If the cost price increases by 15% and he increases the selling price by 10%, what is his new approximate profit percentage?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 17.35% (b) 24.35% (c) 12.35% (d) 28.35%

Q18 A man sells an article at a loss of 10%. Had he bought it for 20% less and sold it for Rs55 more, he could have gained 40%. What is the cost price?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Rs250 (b) Rs280 (c) Rs200 (d) Rs260

Q19 The producer makes a profit of 15% by selling the product to the wholesaler. The wholesaler sells it to the retailer making 10% profit. The retailer sells it to the consumer for Rs12,903 making a profit of 2%. Find the cost of production of the product.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Rs20,000 (b) Rs40,000 (c) Rs10,000 (d) Rs60,000

Q20 A manufacturer sells a product at a profit of 40%. If the cost of raw materials increases by 30% and the manufacturer raises the selling price by 20%, what is the new approximate profit percentage?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 15% (b) 29% (c) 24% (d) 12%

Q21 Given that the cost price of 15 pens equals the selling price of 20 pens, determine the percentage loss incurred.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 45% (b) 35% (c) 25% (d) 55%

Q22 A man sells two articles for $5000 each, making no overall profit or loss. If one article is sold at a 25% profit, what is the approximate percentage loss on the other article?

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 14.56% (b) 16.67% (c) 12.28% (d) 11.42%

Q23 An article is sold at 20% profit. If its cost price and selling price are both reduced by Rs100, the profit would be 4% more. Find the original cost price.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) Rs200 (b) Rs400 (c) Rs800 (d) Rs600

Q24 By selling 45 apples for Rs160, a vendor loses 20%. How many apples should he sell for Rs112 to gain 20% in the entire transaction?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 24 (b) 21 (c) 26 (d) 28

Q25 The cost price of two articles is the same. One is sold at a profit of 15% and the other is sold at a profit of 12%. If the difference between their selling prices is $18, what is the cost price of each article?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) $400 (b) $600 (c) $300 (d) $200

Q26 An article was sold at a 15% loss. If the selling price had been increased by $30.60, a profit of 9% would have been achieved. Determine the selling price required to achieve a 10% profit.

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) $180.25 (b) $140.25 (c) $250.25 (d) $280.25

Q27 Two wristwatches were sold for Rs1,980 each. One was sold at a 10% profit and the other at a 10% loss. What was the total loss in the transaction?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) Rs20 (b) Rs40 (c) Rs60 (d) Rs80

Q28 A trader sells a cabinet at a profit of 15%. If he had purchased it for 20% less and sold it for Rs40 less, he would have gained 30%. Calculate the approximate cost price.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) Rs545 (b) Rs364 (c) Rs234 (d) Rs654

Q29 A vendor invests the same cost price in two items, each costing Rs40,000. He sells one item at a 25% profit and the other at a 25% loss. The average selling price of the two items becomes the principal invested in a 2-year compound interest scheme at 10% per annum. Using algebraic identities, what is the compound interest earned on this investment?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) Rs8,500 (b) Rs8,000 (c) Rs8,025 (d) Rs8,400

ANSWER KEY · Mock Set 01

1 (b)	2 (c)	3 (b)	4 (b)	5 (b)
6 (c)	7 (d)	8 (b)	9 (c)	10 (c)
11 (c)	12 (d)	13 (b)	14 (d)	15 (b)
16 (a)	17 (b)	18 (a)	19 (c)	20 (b)
21 (c)	22 (b)	23 (d)	24 (b)	25 (b)
26 (b)	27 (b)	28 (b)	29 (d)	

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (b)

1% loss

समान SP पर x% लाभ और x% हानि हो तो हमेशा हानि = $x^2/100\% = 10^2/100$ = **1% loss**।

Q2 Ans (c)

12.5%

CP = 100 ⇒ MP = 125 ⇒ SP = 125 × 0.9 = 112.5 ⇒ लाभ **12.5%**।

Q3 **Ans (b)**

Rs16,800

CP = 4k, 5k ⇒ SP = 4.8k, 4.5k ⇒ अंतर 0.3k = 560 ⇒ k = 1866.67।
कुल CP = 9k = **Rs 16,800**।

Q4 **Ans (b)**

100%

3S - C = 5(S - C) ⇒ 4C = 2S ⇒ S = 2C ⇒ मूल लाभ = **100%**।

Q5 **Ans (b)**

25%

CP = 100, SP = 125 ⇒ नए 90 और 112.5 ⇒ लाभ = 22.5/90 = **25%** (दोनों एक ही अनुपात में घटे, इसलिए % वही)।

Q6 **Ans (c)**

Rs840

0.9 × CP = 720 ⇒ CP = 800 ⇒ 5% लाभ पर SP = **Rs 840**।

Q7 **Ans (d)**

Rs276

20% - 15% = 5% of CP = 12 ⇒ CP = 240 ⇒ मूल SP = 240 × 1.15 = **Rs 276**।

Q8 **Ans (b)**

24%

CP = 100, MP = 160। बिक्री = 25% × 160 + 50% × 128 + 25% × 80 = 40 + 64 + 20 = 124।
कुल लाभ = **24%**।

Q9 **Ans (c)**

56.25%

0.8 MP = 1.25 CP ⇒ MP/CP = 1.5625 ⇒ MP, CP से **56.25%** अधिक।

Q10 **Ans (c)**

12.5%

CP = 100, MP = 150। नया CP = 120, SP = 150 × 0.9 = 135 ⇒ लाभ = 15/120 = **12.5%**।

Q11 **Ans (c)**

Rs50,000

x × 1.1 × 1.2 × 0.85 = 56,100 ⇒ 1.122x = 56,100 ⇒ **x = Rs 50,000**।

Q12 **Ans (d)**

32%

MP = 100 ⇒ retailer का CP = 80, बिक्री मूल्य = 95। 900 g को 1 kg बताता है ⇒ असल लागत = 80 × 0.9 = 72।
लाभ = (95 - 72)/72 × 100 ≈ **32%**।

Q13 **Ans (b)**

Rs200

CP = x, SP = 1.05x। नया: 0.95x × 1.10 = 1.045x = 1.05x - 1 ⇒ 0.005x = 1 ⇒ **x = Rs 200**।

Q14 **Ans (d)**

Rs480

MP = 480/0.8 = 600। MP पर 25% लाभ ⇒ CP = 600/1.25 = **Rs 480**।

Q15 **Ans (b)**

10.4%

CP = 100, SP = 125। नया CP = 115, ज़रूरी SP = 115 × 1.2 = 138।
SP में वृद्धि = 13/125 × 100 = **10.4%**।

Q16 **Ans (a)**

Loss of Rs200

CP_1 = 9900/1.1 = 9000, CP_2 = 9900/0.9 = 11000 ⇒ कुल CP = 20,000, कुल SP = 19,800 ⇒ **Rs 200 हानि**।

Q17 **Ans (b)**

24.35%

CP = 100, SP = 130। नया CP = 115, नया SP = 143 ⇒ लाभ = 28/115 × 100 ≈ **24.35%**।

Q18 **Ans (a)**

Rs250

SP = 0.9C। नया: 0.8C × 1.4 = 1.12C = 0.9C + 55 ⇒ 0.22C = 55 ⇒ **C = Rs 250**।

Q19 **Ans (c)**

Rs10,000

x × 1.15 × 1.10 × 1.02 = 12,903 ⇒ 1.2903x = 12,903 ⇒ **x = Rs 10,000**।

Q20 **Ans (b)**

29%

CP = 100, SP = 140। नया CP = 130, नया SP = 168 ⇒ लाभ = 38/130 ≈ **29%**।

Q21 **Ans (c)**

25%

15 CP = 20 SP ⇒ SP/CP = 3/4 ⇒ हानि = **25%**।

Q22 **Ans (b)**

16.67%

CP_1 = 5000/1.25 = 4000। कुल CP = कुल SP = 10,000 ⇒ CP_2 = 6000।

हानि = 1000/6000 × 100 = **16.67%**।

Q23 **Ans (d)**

Rs600

(1.2C - 100)/(C - 100) = 1.24 ⇒ 1.2C - 100 = 1.24C - 124 ⇒ 0.04C = 24 ⇒ **C = Rs 600**।

Q24 **Ans (b)**

21

45 सेब का CP = 160/0.8 = 200। 20% लाभ पर n सेब: 112 = 1.2 × n × 200/45 ⇒ **n = 21**।

Q25 **Ans (b)**

$600

(15% - 12%) of CP = 18 ⇒ CP = **$600**।

Q26 **Ans (b)**

$140.25

(9% + 15%) of CP = 30.60 ⇒ CP = 127.50 ⇒ 10% लाभ पर SP = **$140.25**।

Q27 **Ans (b)**

Rs40

CP = 1980/1.1 + 1980/0.9 = 1800 + 2200 = 4000; SP = 3960 ⇒ हानि **Rs 40**।

Q28 **Ans (b)**

Rs364

SP = 1.15C। नया: 0.8C × 1.3 = 1.04C = 1.15C - 40 ⇒ 0.11C = 40 ⇒ C ≈ **Rs 364**।

Q29 **Ans (d)**

Rs8,400

SP = 50,000 और 30,000 ⇒ औसत = 40,000।

CI = 40,000 × $[(1.1)^2 - 1]$ = 40,000 × 0.21 = **Rs 8,400**।

CHAPTER 07

Discount

Marked Price · Successive Discount · Markup

21	1	1	4
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Discount

01 Successive discount
a% और b% = a + b − ab/100 एकल छूट।

02 MP/CP अनुपात
MP × (1 − d) = CP × (1 + p) ⇒ MP/CP = (1 + p)/(1 − d)।

03 Buy x get y free
छूट% = y/(x + y) × 100।

04 दो छूटों का अंतर
$(d_2 - d_1)$% of MP = रुपयों में अंतर ⇒ MP सीधे निकलता है।

Mock Set 01 Q1–Q21 · 30 Sep → 28 Oct

TOPIC · Discount

Q1 A laptop has a marked price of Rs80,000. It is sold after giving successive discounts of 15%, 20% and 10%. Find the selling price.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) Rs54,400 (b) Rs47,620 (c) Rs50,240 (d) Rs48,960

Q2 A shopkeeper marks his goods 40% above the cost price and offers a 15% discount on the marked price. Find the actual profit percentage.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 15% (b) 27% (c) 23% (d) 19%

Q3 A shopkeeper marks an article 35% above its cost price. If he sells it after allowing a discount of 15%, what is his gain percentage?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 18.35% (b) 16.25% (c) 14.75% (d) 19.55%

Q4 A dealer offers a 7% discount on the marked price of an article. Additionally, he provides 1 free article for every 25 articles purchased. Despite this, he earns a profit of 25%. Find the percentage by which the marked price exceeds the cost price of the article (round off to two decimal places).

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 38.80% (b) 39.78% (c) 41.41% (d) 43.56%

Q5 A trader makes a profit of Rs120 on selling an item after offering a 20% discount. If the profit is 20%, what is the item's marked price?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) Rs780 (b) Rs900 (c) Rs830 (d) Rs970

Q6 The marked price of an article is Rs800. It is sold for Rs612.50 after two successive discounts of x% each. If instead a single discount of 2x% is applied on the same marked price, find the selling price of the article.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) Rs540 (b) Rs600 (c) Rs660 (d) Rs700

Q7 A trader makes a profit of Rs100 on selling an item after allowing a discount of 20%. If the profit is 25%, find the marked price of the item.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) Rs475 (b) Rs530 (c) Rs710 (d) Rs625

Q8 A man purchased a watch at a 10% discount. If he had instead received a 20% discount, he would have paid Rs125 less. What is the marked price of the watch?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) Rs1340 (b) Rs1250 (c) Rs1430 (d) Rs1520

Q9 An item is sold for Rs880 after a 20% discount. Without a discount, the seller would gain 10%. Find the cost price.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) Rs1600 (b) Rs1400 (c) Rs1200 (d) Rs1000

Q10 A person buys a bag at a 20% discount. If the discount were 30%, the price paid would decrease by Rs150. What is the marked price of the bag?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) Rs1200 (b) Rs1500 (c) Rs2100 (d) Rs2500

Q11 The marked price of an article is Rs1200. It is sold for Rs768 after two successive discounts of x% each. If instead a single discount of 2x% is applied on the same marked price, what will be the selling price of the article?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) Rs660 (b) Rs700 (c) Rs720 (d) Rs680

Q12 A shopkeeper gives a 25% discount on the marked price of a product and still makes a 20% profit, amounting to Rs80. Find the marked price of the product.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) Rs490 (b) Rs720 (c) Rs530 (d) Rs640

Q13 A product is marked at Rs25,000. It is sold at a discount of 10% and then at a further discount such that its final selling price becomes Rs20,250. What is the percentage of the second discount?

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 12.25% (b) 10% (c) 14.40% (d) 16%

Q14 A shopkeeper allows a 20% discount on the marked price. What should be the marked price of an article costing Rs4000 to earn 25% profit?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) Rs6250 (b) Rs4990 (c) Rs7400 (d) Rs5870

Q15 A shopkeeper earns a profit of Rs60 after giving a discount of 10% on an article. If his profit percentage is 20%, what is the marked price of the article?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) Rs320 (b) Rs440 (c) Rs400 (d) Rs350

Q16 During a festive sale, a shop advertises a scheme: "Buy 11 items while paying only for 8." Calculate the percentage discount offered in this deal.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 32% (b) 27.27% (c) 36.04% (d) 25%

Q17 A shopkeeper reduces the price from Rs12.75 to Rs9.6. What is the exact discount in rupees?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) Rs3.05 (b) Rs3.15 (c) Rs3.25 (d) Rs3.1

Q18 An item is marked at 80% above its cost price. If it is sold at a 30% discount, what is the profit percentage?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 22% (b) 26% (c) 30% (d) 32%

Q19 A merchant prices an item such that after offering two successive discounts of x% and 2x% on the marked price, they secure a net profit percentage equal to x% of the cost price. If the ratio of the marked price to the cost price is exactly 5 : 2, what is the value of x?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 25% (b) 20% (c) 40% (d) 16%

Q20 A shopkeeper marks an article's price 30% above its cost price. He then offers a 10% discount on the marked price when selling it. What is his overall profit percentage?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 19% (b) 20% (c) 17% (d) 22%

Q21 A man buys a shirt at a discount of 15%. If he had received a discount of 25%, he would have paid Rs200 less. What is the marked price of the shirt?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) Rs1500 (b) Rs1700 (c) Rs2000 (d) Rs2800

ANSWER KEY · Mock Set 01				
1 (d)	2 (d)	3 (c)	4 (b)	5 (b)
6 (b)	7 (d)	8 (b)	9 (d)	10 (b)
11 (c)	12 (d)	13 (b)	14 (a)	15 (c)
16 (b)	17 (b)	18 (b)	19 (b)	20 (c)
21 (c)				

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (d)

Rs48,960

80,000 × 0.85 × 0.80 × 0.90 = **Rs 48,960**।

Q2 Ans (d)

19%

1.40 × 0.85 = 1.19 ⇒ लाभ **19%**।

Q3 Ans (c)

14.75%

1.35 × 0.85 = 1.1475 ⇒ लाभ **14.75%**।

Q4 Ans (b)

39.78%

26 वस्तुएँ देकर 25 का दाम (हर एक 0.93 MP) ⇒ आय = 23.25 MP, लागत = 26 CP।

23.25 MP = 1.25 × 26 CP = 32.5 CP ⇒ MP/CP = 1.3978 ⇒ **39.78%** अधिक।

Q5 Ans (b)

Rs900

20% लाभ = 120 ⇒ CP = 600, SP = 720 = 0.8 MP ⇒ MP = **Rs 900**।

Q6 Ans (b)

Rs600

800(1 - x)² = 612.5 ⇒ (1 - x)² = 0.765625 ⇒ 1 - x = 0.875 ⇒ x = 12.5%।

2x = 25% छूट ⇒ SP = 800 × 0.75 = **Rs 600**।

Q7 Ans (d)

Rs625

25% लाभ = 100 ⇒ CP = 400, SP = 500 = 0.8 MP ⇒ MP = **Rs 625**।

Q8 Ans (b)

Rs1250

(20% - 10%) of MP = 125 ⇒ MP = **Rs 1250**।

Q9 Ans (d)

Rs1000

MP = 880/0.8 = 1100 = 1.1 CP ⇒ CP = **Rs 1000**।

Q10 Ans (b)

Rs1500

(30% - 20%) of MP = 150 ⇒ MP = **Rs 1500**।

Q11 Ans (c)

Rs720

1200(1 - x)² = 768 ⇒ (1 - x)² = 0.64 ⇒ x = 20% ⇒ 2x = 40% ⇒ SP = 1200 × 0.6 = **Rs 720**।

Q12 Ans (d)

Rs640

20% लाभ = 80 ⇒ CP = 400, SP = 480 = 0.75 MP ⇒ MP = **Rs 640**।

Q13 Ans (b)

10%

25,000 × 0.9 = 22,500 ⇒ 20,250/22,500 = 0.9 ⇒ दूसरी छूट **10%**।

Q14 Ans (a)

Rs6250

SP = 4000 × 1.25 = 5000 = 0.8 MP ⇒ MP = **Rs 6250**।

Q15 Ans (c)

Rs400

20% लाभ = 60 ⇒ CP = 300, SP = 360 = 0.9 MP ⇒ MP = **Rs 400**।

Q16 Ans (b)

27.27%

11 में से 3 मुफ़्त ⇒ छूट = 3/11 × 100 = **27.27%**।

Q17 Ans (b)

Rs3.15

12.75 - 9.60 = **Rs 3.15**।

Q18 **Ans (b)**

26%

1.8 × 0.7 = 1.26 ⇒ लाभ **26%**।

Q19 **Ans (b)**

20%

MP/CP = 5/2 ⇒ 2.5(1 - x)(1 - 2x) = 1 + x।

x = 0.2 रखें: 2.5 × 0.8 × 0.6 = 1.2 = 1 + 0.2 ✓ ⇒ **x = 20%**।

Q20 **Ans (c)**

17%

1.3 × 0.9 = 1.17 ⇒ लाभ **17%**।

Q21 **Ans (c)**

Rs2000

(25% - 15%) of MP = 200 ⇒ MP = **Rs 2000**।

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CHAPTER 08

Simple Interest

SI Formula · Rate · Time · Instalments

28	1	1	4
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Simple Interest

01 SI = PRT/100
दो वर्षों की राशियों का अंतर ÷ वर्षों का अंतर = एक वर्ष का SI।

02 दोगुना/तिगुना
P n गुना होने का समय T = (n − 1) × 100/R।

03 एक ही दर, अलग मूलधन/समय
SI ∝ P × T — अनुपात से सीधे तुलना करें।

04 बराबर राशियाँ
भाग ∝ 1/(1 + RT/100)।

Mock Set 01 Q1–Q28 · 30 Sep → 28 Oct

TOPIC · Simple Interest (SI)

Q1 A sum of money amounts to Rs. 825 in 3 years and to Rs. 950 in 4 years at some rate of simple interest. The sum is:

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 400/- (b) 410/- (c) 450/- (d) 550/-

Q2 A man invests Rs4,000 for 3 years at a certain rate of simple interest. If the principal is increased by Rs2,000 and the rate is kept the same, the interest increases by Rs360. What was the original rate of interest?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 5% (b) 8% (c) 6% (d) 10%

Q3 A trader borrowed Rs90,000 at a fixed rate of simple interest. After 5 years, he repaid Rs1,21,500. If he had borrowed Rs1,50,000 at the same rate and for the same period, what would have been the total amount repaid?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) Rs1,04,500 (b) Rs2,02,500 (c) Rs2,03,300 (d) Rs1,05,900

Q4 A sum of money lent at simple interest amounts to 1.6 times the principal after a certain time. If the rate of interest is numerically double the time (in years), find the approximate annual rate of interest.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 9% (b) 11% (c) 16% (d) 14%

Q5 A cooperative housing society borrowed Rs4,50,000 to repair its buildings. The society paid back Rs6,12,000 after 9 years. Find the rate of simple interest and determine how much interest was paid every year.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) Rate of Simple Interest = 5% per annum Interest paid every year = Rs21,000
(b) Rate of Simple Interest = 2% per annum Interest paid every year = Rs19,000
(c) Rate of Simple Interest = 4% per annum Interest paid every year = Rs18,000
(d) Rate of Simple Interest = 3% per annum Interest paid every year = Rs17,000

Q6 A person divided a sum of Rs17,200 into two parts and invested them at 8% and 10% per annum simple interest respectively. If the total interest received after 2 years is Rs3,008, what is the difference between the two parts?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) Rs4,000 (b) Rs4,400 (c) Rs5,200 (d) Rs3,600

Q7 Money is invested at simple interest for 3 years at a certain rate. If the rate were increased by 2%, the interest earned would increase by Rs540. Find the principal (sum of money).

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) Rs8,500 (b) Rs9,000 (c) Rs7,000 (d) Rs8,000

Q8 A farmer borrowed Rs2,50,000 at simple interest under a rural credit scheme. After 7 years, he repaid Rs3,72,500. If another farmer borrowed Rs4,00,000 at the same rate but for 10 years, how much more interest would the second farmer pay than that paid by the first farmer?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) Rs1,50,900 (b) Rs1,51,000 (c) Rs1,55,200 (d) Rs1,57,500

Q9 A sum of Rs10,500 amounts to Rs13,650 in 3 years at a certain rate of simple interest. If the rate is increased by 2%, what will be the amount of the same sum in the same time?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) Rs14,280 (b) Rs13,850 (c) Rs14,500 (d) Rs14,100

Q10 A company borrowed Rs10,00,000. One-fourth of the loan was repaid after 4 years and another one-third of the original loan after 7 years. The remaining principal was cleared after 10 years. If the simple interest rate was 9% per annum, calculate the total interest paid.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Rs6,75,000 (b) Rs6,60,000 (c) Rs6,20,000 (d) Rs6,00,0

Q11 A sum of Rs25,000 is divided into two parts. The first part is invested at 8% per annum for 6 years, and the second part is invested at 10% per annum for 3 years. If the ratio of the interest earned from the first part to the second part is 8 : 5, find the amount of the first part.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) Rs10,000 (b) Rs12,500 (c) Rs15,100 (d) Rs16,000

Q12 A sum of money was lent at a certain rate for 2 years. If it had been lent at a 4% higher rate, it would have fetched an additional Rs480. If the same sum is lent at 10% for 5 years, what will be the simple interest?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) Rs2,500 (b) Rs3,000 (c) Rs2,000 (d) Rs3,200

Q13 A medium-sized furniture manufacturer borrowed a certain amount from a nationalized bank to expand its production unit. The loan was sanctioned at a fixed rate of simple interest. After 8 years, the total amount repaid was Rs7,20,000, which included Rs2,40,000 as interest. Had the company borrowed Rs1,50,000 more at the same rate and for the same duration, determine the total repayment amount.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) Rs8,66,000 (b) Rs9,45,000 (c) Rs7,22,000 (d) Rs6,66,0

Q14 A sum of Rs15,000 is lent in two parts such that the simple interest on the first part at 10% for 5 years is double the simple interest on the second part at 12.5% for 4 years. What is the difference between the two parts?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) Rs3,000 (b) Rs5,000 (c) Rs2,500 (d) Rs4,000

Q15 A sum of money amounts to Rs9,440 in 3 years and to Rs10,400 in 5 years at a certain rate of simple interest. If the interest rate increases by 2%, in how many years will the original principal double?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 10 years 4 months (b) 12 years 8 months
(c) 12 years 6 months (d) 10 years 2 months

Q16 The simple interest on a sum of money for 15 years is equal to $\frac{3}{4}$ of the principal. If the principal is increased by 50% after 10 years, what will be the total interest at the end of the 15-year period?

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) $\frac{7}{8}$ of the original principal (b) $\frac{5}{8}$ of the original principa
(c) $\frac{1}{8}$ of the original principal (d) $\frac{3}{8}$ of the original principa

Q17 An engineer splits an investment of Rs6,00,000 into two equal parts. The first part is invested at an annual simple interest rate of 8%, and the second part is invested at an annual simple interest rate of 11%. If both parts are invested for a duration of 5 years, calculate the total simple interest earned from both investments combined.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) Rs2,00,000 (b) Rs2,25,000 (c) Rs2,22,000 (d) Rs2,85,0

Q18 A textile trader borrowed Rs1,25,000 and agreed to repay the loan under simple interest terms. After 4 years, he repaid Rs1,65,000. If he had borrowed Rs2,00,000 at the same rate for 7 years, calculate the amount he would have repaid.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) Rs3,12,000 (b) Rs3,55,000 (c) Rs3,88,000 (d) Rs3,19,00

Q19 A trader invested Rs8,40,000. One-third was invested for 12 years, one-fourth for 10 years, and the remainder for 8 years. All investments earned 10% per annum simple interest. Find the total interest.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) Rs8,00,000 (b) Rs8,29,000 (c) Rs8,26,000 (d) Rs8,20,0

Q20 A loan of Rs18,000 is repaid in 11 equal monthly instalments of Rs1,800 each, payable at the end of successive months starting from the first month. If interest is simple, what annual rate of interest is implied by these instalments under the standard average-due-date method?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 20% (b) 18% (c) 22% (d) 24%

Q21 A shipping company invested Rs25,00,000. One-fifth was invested at 8% simple interest per annum, two-fifths at 10% simple interest per annum, and the remainder at 12% simple interest per annum. Find the total interest generated over 7 years.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) Rs17,30,000 (b) Rs18,20,000 (c) Rs16,25,000 (d) Rs15,5

Q22 A farmer borrows Rs2,00,000 at simple interest. After 9 years, he repays a total amount of Rs2,88,000 to fully settle the loan. If another farmer borrows Rs3,00,000 at the same rate for 15 years, how much more interest would he pay compared to the first farmer?

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) Rs1,32,000 (b) Rs1,34,000 (c) Rs1,39,000 (d) Rs1,44,000

Q23 A woman invested one-third of her savings at 8% simple interest for 6 years and the remaining amount at 10% simple interest for 4 years. At the end of the investment periods, the total simple interest earned from both investments was Rs18,240. Determine her total savings.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) Rs43,452 (b) Rs42,750 (c) Rs44,521 (d) Rs45,100

Q24 A cooperative bank lends Rs5,00,000 to a trader at simple interest. After 8 years, he repays a total amount of Rs7,00,000 to settle the loan. Another trader borrows Rs7,50,000 at the same rate but for 12 years. Calculate the difference in interest paid by the second trader compared to the first.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) Rs2,80,000 (b) Rs2,25,000 (c) Rs2,50,000 (d) Rs1,50,00

Q25 Ria invests RsP in Scheme A, which offers simple interest at 15% per annum for 4 years, and Rs(P + 1,680) in Scheme B, which offers compound interest at 25% per annum for 2 years, compounded annually. If the ratio of the amounts received from Scheme A and Scheme B is 4 : 5, what is the value of P?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) Rs6,000 (b) Rs5,600 (c) Rs6,400 (d) Rs7,200

Q26 Person A borrows Rs18,000 at $13\frac{1}{3}\%$ per annum simple interest and person B borrows Rs24,000 at $8\frac{1}{3}\%$ per annum simple interest on the same date. At the instant when their payable amounts become equal, what is the total simple interest payable by A and B together?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) Rs60,000 (b) Rs62,000 (c) Rs64,000 (d) Rs66,000

Q27 A person divides Rs47,200 into three parts and invests all three at $6\frac{1}{4}\%$ per annum simple interest for 4 years, 8 years and 16 years respectively. If the amounts received at the end of the respective periods are equal, what is the difference between the part invested for 4 years and the part invested for 16 years?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) Rs6,400 (b) Rs6,800 (c) Rs7,000 (d) Rs7,200

Q28 A person invested Rs1,20,000. Two years later, he invested another Rs80,000 at the same simple interest rate. Eight years after the first investment, the combined interest from both investments was Rs1,08,000. Find the rate of interest.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 8.5% (b) 5.5% (c) 6.5% (d) 7.5%

ANSWER KEY · Mock Set 01

1 (c)	2 (c)	3 (b)	4 (b)	5 (c)
6 (b)	7 (b)	8 (d)	9 (a)	10 (a)
11 (b)	12 (b)	13 (b)	14 (b)	15 (c)
16 (a)	17 (d)	18 (a)	19 (c)	20 (a)
21 (b)	22 (a)	23 (b)	24 (c)	25 (a)
26 (d)	27 (d)	28 (d)		

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (c)

450/-

1 वर्ष का SI = 950 - 825 = 125 ⇒ 3 वर्ष का SI = 375 ⇒ मूलधन = 825 - 375 = **Rs 450**।

Q2 Ans (c)

6%

बढ़े Rs 2000 पर 3 वर्ष का ब्याज = 360 ⇒ 2000 × R × 3/100 = 360 ⇒ **R = 6%**।

Q3 Ans (b)

Rs2,02,500

SI = 1,21,500 - 90,000 = 31,500 ⇒ R = 31,500 × 100/(90,000 × 5) = 7%।

1,50,000 पर 5 वर्ष का SI = 52,500 ⇒ राशि = **Rs 2,02,500**।

Q4 Ans (b)

11%

SI = 0.6P = P × R × T/100, R = 2T ⇒ 2T² = 60 ⇒ T ≈ 5.48 ⇒ R ≈ **11%**।

Q5 Ans (c)

Rate of Simple Interest = 4% per annum Interest paid every year = Rs18,000

कुल SI = 6,12,000 - 4,50,000 = 1,62,000 ⇒ प्रति वर्ष = 18,000।

R = 18,000/4,50,000 × 100 = **4% प्रति वर्ष, Rs 18,000 प्रति वर्ष**।

Q6 Ans (b)

Rs4,400

1 वर्ष का ब्याज = 3008/2 = 1504 ⇒ 8% पर x: 0.08x + 0.10(17200 - x) = 1504 ⇒ x = 10,800।

दूसरा भाग = 6,400 ⇒ अंतर = **Rs 4,400**।

Q7 Ans (b)

Rs9,000

P × 2% × 3 = 540 ⇒ 0.06P = 540 ⇒ **P = Rs 9,000**।

Q8 Ans (d)

Rs1,57,500

पहले किसान का SI = 1,22,500 ⇒ R = 1,22,500 × 100/(2,50,000 × 7) = 7%।

दूसरे का SI = 4,00,000 × 7% × 10 = 2,80,000 ⇒ अंतर = **Rs 1,57,500**।

Q9 Ans (a)

Rs14,280

SI = 3150 ⇒ R = 3150 × 100/(10500 × 3) = 10%। 12% पर SI = 10500 × 0.36 = 3780 ⇒ राशि = **Rs 14,280**।

Q10 Ans (a)

Rs6,75,000

2,50,000 पर 4 वर्ष = 90,000; 3,33,333.33 पर 7 वर्ष = 2,10,000; बचे 4,16,666.67 पर 10 वर्ष = 3,75,000।

कुल ब्याज = **Rs 6,75,000**।

Q11 Ans (b)

Rs12,500

0.48x : 0.30(25000 - x) = 8 : 5 ⇒ 2.4x = 2.4(25000 - x) ⇒ x = **Rs 12,500**।

Q12 Ans (b)

Rs3,000

P × 4% × 2 = 480 ⇒ P = 6000। 10% पर 5 वर्ष: 6000 × 0.5 = **Rs 3,000**।

Q13 **Ans (b)**

Rs9,45,000

P = 7,20,000 − 2,40,000 = 4,80,000; R = 2,40,000 × 100/(4,80,000 × 8) = 6.25%।

नया P = 6,30,000 ⇒ SI = 6,30,000 × 50% = 3,15,000 ⇒ कुल = **Rs 9,45,000**।

Q14 **Ans (b)**

Rs5,000

x × 10% × 5 = 2 × (15000 − x) × 12.5% × 4 ⇒ 0.5x = (15000 − x) ⇒ x = 10,000, दूसरा 5,000।

अंतर = **Rs 5,000**।

Q15 **Ans (c)**

12 years 6 months

2 वर्ष का SI = 960 ⇒ प्रति वर्ष 480 ⇒ P = 9440 − 1440 = 8000, R = 6%।

नई दर 8% ⇒ दोगुना होने का समय = 100/8 = **12 वर्ष 6 महीने**।

Q16 **Ans (a)**

$\frac{7}{8}$ of the original principal

15 वर्ष में SI = 3/4 P ⇒ R = 5%। पहले 10 वर्ष का SI = 0.5P।

फिर 1.5P पर 5 वर्ष = 1.5P × 25% = 0.375P ⇒ कुल = 0.875P = **मूल P का 7/8**।

Q17 **Ans (d)**

Rs2,85,000

3,00,000 × (8% + 11%) × 5 = 3,00,000 × 0.95 = **Rs 2,85,000**।

Q18 **Ans (a)**

Rs3,12,000

SI = 40,000 ⇒ R = 40,000 × 100/(1,25,000 × 4) = 8%।

2,00,000 पर 7 वर्ष: SI = 1,12,000 ⇒ राशि = **Rs 3,12,000**।

Q19 **Ans (c)**

Rs8,26,000

2,80,000 × 1.2 + 2,10,000 × 1.0 + 3,50,000 × 0.8 = 3,36,000 + 2,10,000 + 2,80,000 = **Rs 8,26,000**।

Q20 **Ans (a)**

20%

कुल किस्तें = 11 × 1800 = 19,800 ⇒ ब्याज = 1800।

Average due date = (1 + 2 + … + 11)/11 = 6 महीने ⇒ 18,000 × R × 0.5 = 1800 ⇒ **R = 20%**।

Q21 **Ans (b)**

Rs18,20,000

5,00,000 × 8% + 10,00,000 × 10% + 10,00,000 × 12% = 2,60,000 प्रति वर्ष।

7 वर्ष में = **Rs 18,20,000**।

Q22 **Ans (a)**

Rs1,32,000

पहले का SI = 88,000 (9 वर्ष)। दूसरे का SI = 88,000 × (3,00,000/2,00,000) × (15/9) = 2,20,000।

अंतर = **Rs 1,32,000**।

Q23 **Ans (b)**

Rs42,750

बचत S: (S/3) × 48% + (2S/3) × 40% = 0.16S + 0.2667S = 0.4267S = 18,240 ⇒ S = **Rs 42,750**।

Q24 **Ans (c)**

Rs2,50,000

SI = 2,00,000 (8 वर्ष) ⇒ R = 5%। दूसरे का SI = 7,50,000 × 5% × 12 = 4,50,000।

अंतर = **Rs 2,50,000**।

Q25 **Ans (a)**

Rs6,000

A की राशि = P × 1.6; B की राशि = (P + 1680) × 1.25^2 = 1.5625(P + 1680)।

1.6P/[1.5625(P + 1680)] = 4/5 ⇒ 8P = 6.25P + 10,500 ⇒ **P = Rs 6,000**।

Q26 **Ans (d)**

Rs66,000

A: 18,000 + 2400t; B: 24,000 + 2000t ⇒ 400t = 6000 ⇒ t = 15 वर्ष।

कुल ब्याज = 2400 × 15 + 2000 × 15 = **Rs 66,000**।

Q27 **Ans (d)**

Rs7,200

6¼% पर राशि गुणक: 4 वर्ष → 1.25, 8 → 1.5, 16 → 2। राशियाँ बराबर ⇒ भाग ∝ 1/1.25 : 1/1.5 : 1/2 = 24 : 20 : 15।

1 भाग = 47,200/59 = 800 ⇒ अंतर = (24 − 15) × 800 = **Rs 7,200**।

Q28 **Ans (d)**

7.5%

1,20,000 × 8 × R% + 80,000 × 6 × R% = 14,40,000 × R% = 1,08,000 ⇒ **R = 7.5%**।

CHAPTER 09

Compound Interest

CI · CI - SI · Half-yearly · Population Growth

36	1	2	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Compound Interest

01 Ready factors
10% → 1.1, 1.21, 1.331, 1.4641; 20% → 1.2, 1.44, 1.728; 5% → 1.05, 1.1025, 1.157625।

02 CI - SI (2 वर्ष)
$P(R/100)^2$; 3 वर्ष: $P(R/100)^2(3 + R/100)$।

03 लगातार वर्षों की राशियाँ
$R = (A_2 - A_1)/A_1 \times 100$।

04 Half-yearly / Quarterly
दर को 2 या 4 से भाग दें, अवधियाँ 2 या 4 गुना करें।

05 n गुना होना
t वर्ष में k गुना ⇒ 2t वर्ष में k^2, 3t में k^3 गुना।

Mock Set 01 Q1–Q25 · 30 Sep → 16 Oct

TOPIC · Compound Interest (CI) (1/2)

Q1 Rs2,50,000 is invested at 8% compound interest. After 1 year, Rs40,000 is withdrawn. Find the amount after 2 years.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) Rs2,98,400 (b) Rs2,78,400 (c) Rs2,48,400 (d) Rs2,08,40

Q2 A sum of money becomes Rs1,452 in 2 years and Rs1,320 in 1 year. Find the rate of compound interest.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 12% (b) 10% (c) 5% (d) 8%

Q3 The amounts at the end of the 3rd and 4th years on a certain sum are Rs13,310 and Rs14,641 respectively at compound interest. Find the principal.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) Rs8500 (b) Rs9000 (c) Rs10000 (d) Rs12000

Q4 A certain amount becomes Rs27,000 in 3 years when compounded annually. It is known that the cube root of the amount and the square root of the principal are both natural numbers. What is the rate of interest per annum?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 10% (b) 15% (c) 20% (d) 25%

Q5 The compound interest on a sum for 2 years at 12% per annum compounded annually is Rs2,544. What is the principal amount?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) Rs10,000 (b) Rs12,000 (c) Rs13,000 (d) Rs11,500

Q6 The amount of a sum at the end of the 1st year is Rs4,500 and at the end of the 2nd year is Rs4,950. Find its approximate principal.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) Rs3981 (b) Rs4001 (c) Rs3801 (d) Rs4091

Q7 A man deposits Rs2,00,000 at 10% p.a. compound interest. After the first year's interest is credited, he withdraws 40% of the interest earned. Find the balance at the end of the second year.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) Rs2,93,200 (b) Rs2,63,200 (c) Rs2,33,200 (d) Rs2,03,20

Q8 An investment of Rs2,500 earns compound interest at 10% per annum. What will be the amount after 4 years?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) Rs3360.25 (b) Rs3660.25 (c) Rs3460.25 (d) Rs3560.25

Q9 Find the compound interest on Rs5,000 at 12% per annum for 1 year 4 months, compounded annually.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) Rs824 (b) Rs804 (c) Rs900 (d) Rs800

Q10 A sum becomes 9 times its original value in 4 years under compound interest. In how many years will it become 81 times the original amount?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 8 years (b) 7 years (c) 5 years (d) 6 years

Q11 A sum of Rs1,00,000 is invested at compound interest at 12% per annum compounded quarterly. What will be the amount after 1 year?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) Rs1,12,550.88 (b) Rs1,12,360.45
(c) Rs1,12,480 (d) Rs1,12,640.25

Q12 Find CI on Rs10,000 for 1.5 years at 10% p.a., interest compounded half-yearly.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) Rs1547 (b) Rs1552 (c) Rs1576 (d) Rs1585

Q13 A sum of Rs2,500 amounts to Rs2,916 in 2 years at compound interest. Calculate the rate of interest.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 15% (b) 8% (c) 12% (d) 6%

Q14 Find the amount after 3 years if Rs12,000 is invested at 15% per annum compound interest.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Rs18250.50 (b) Rs17250.50 (c) Rs19250.50 (d) Rs16250

Q15 Rs3,00,000 is invested at 10% compound interest. After 1 year, Rs50,000 is withdrawn. Find the final amount after 2 years.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) Rs3,08,000 (b) Rs3,68,000 (c) Rs3,48,000 (d) Rs3,98,0

Q16 Calculate the compound interest on Rs12,000 at 10% per annum for 1 year 6 months, compounded annually.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) Rs1460 (b) Rs1860 (c) Rs1560 (d) Rs1660

Q17 An amount of Rs5,000 is invested at 12% compound interest. What will be the amount after 2 years?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) Rs5972 (b) Rs6172 (c) Rs6072 (d) Rs6272

Q18 Rs1,80,000 is invested at 10% compound interest. After the first year's interest is added, 20% of the interest is withdrawn. Find the balance at the end of 2 years.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) Rs2,53,840 (b) Rs2,13,840 (c) Rs2,73,840 (d) Rs2,93,84

Q19 A sum of money amounts to Rs11,616 at the end of 2 years and to Rs14,055.36 at the end of 4 years at compound interest, compounded annually. Find the rate of interest per annum and the original principal amount.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) Principal = Rs9,200 Annual Rate of Interest = 9%
(b) Principal = Rs8,600 Annual Rate of Interest = 8%
(c) Principal = Rs8,000 Annual Rate of Interest = 7%
(d) Principal = Rs9,600 Annual Rate of Interest = 10%

Q20 Find the compound interest on Rs20,000 at 15% per annum for 2 years 4 months, compounded annually.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) Rs8072.50 (b) Rs7772.50 (c) Rs8772.50 (d) Rs7072.50

Q21 Rs40,000 is invested with annual compounding. The interest rate is 8% for the first year, 12% for the second year, and 10% for the third year. Find the compound interest earned.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) Rs14,666.90 (b) Rs12,444.40 (c) Rs11,111.20 (d) Rs13,222.

Q22 Rs1,20,000 is deposited at 10% per annum compound interest. After the first year, 50% of the interest is withdrawn. Find the balance at the end of the second year.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) Rs1,88,600 (b) Rs1,68,600 (c) Rs1,38,600 (d) Rs1,58,600

Q23 A laptop is available for Rs66, 550 by cash payment or by paying Rs50, 000 as down payment and the balance in three equal annual instalments. If interest is charged at 10% per annum compounded annually, what is the amount of each instalment?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) Rs6, 655 (b) Rs6, 500 (c) Rs6, 750 (d) Rs6, 810

Q24 A certain sum of money amounts to Rs5,832 in 2 years at 8% per annum compound interest. Find the principal.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) Rs4000 (b) Rs4700 (c) Rs5000 (d) Rs5500

Q25 A jacket, originally priced at Rs5,000, is sold with a 20% discount. The shopkeeper then faces two possibilities with the money he receives: Possibility 1 (75% chance): He invests the money for 2 years at a 10% annual compound interest rate. Possibility 2 (25% chance): He uses the money for other purposes, and it doesn't earn any interest. Considering these possibilities and their likelihood, what is the average amount of money the shopkeeper can expect to have after 2 years as a result of this jacket sale?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) Rs4,430 (b) Rs4,730 (c) Rs4,530 (d) Rs4,630

ANSWER KEY · Mock Set 01

1 (c)	2 (b)	3 (c)	4 (c)	5 (a)
6 (d)	7 (c)	8 (b)	9 (a)	10 (a)
11 (a)	12 (c)	13 (b)	14 (a)	15 (a)
16 (b)	17 (d)	18 (b)	19 (d)	20 (b)
21 (d)	22 (c)	23 (a)	24 (c)	25 (d)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (c)

Rs2,48,400

1 वर्ष बाद: 2,50,000 × 1.08 = 2,70,000; निकासी के बाद 2,30,000।
2 वर्ष बाद: 2,30,000 × 1.08 = **Rs 2,48,400**।

Q2 Ans (b)

10%

R = (1452 - 1320)/1320 × 100 = **10%**।

Q3 Ans (c)

Rs10000

R = 1331/13310 × 100 = 10%। P = 13,310/$(1.1)^3$ = **Rs 10,000**।

Q4 Ans (c)

20%

$\sqrt[3]{27000} = 30$। R = 20% लें: P = 27000/1.728 = 15625 = 125^2 (perfect square) ✓ ⇒ **20%**।

Q5 Ans (a)

Rs10,000

12% के 2 वर्ष का CI = 25.44% ⇒ P = 2544/0.2544 = **Rs 10,000**।

Q6 Ans (d)

Rs4091

R = 450/4500 = 10% ⇒ P = 4500/1.1 ≈ **Rs 4091**।

Q7 Ans (c)

Rs2,33,200

पहले वर्ष का ब्याज = 20,000; निकासी 40% = 8,000 ⇒ शेष 2,12,000।
दूसरे वर्ष के अंत में = 2,12,000 × 1.1 = **Rs 2,33,200**।

Q8 Ans (b)

Rs3660.25

2500 × $(1.1)^4$ = 2500 × 1.4641 = **Rs 3660.25**।

Q9 Ans (a)

Rs824

1 वर्ष 4 महीने: 5000 × 1.12 × (1 + 12%/3) = 5000 × 1.12 × 1.04 = 5824
⇒ CI = **Rs 824**।

Q10 Ans (a)

8 years

4 वर्ष में 9 गुना ⇒ 8 वर्ष में 9^2 = 81 गुना ⇒ **8 वर्ष**।

Q11 **Ans (a)**

Rs1,12,550.88

Quarterly दर = 3% ⇒ 1,00,000 × $(1.03)^4$ = 1,00,000 × 1.12550881 = **Rs 1,12,550.88**।

Q12 **Ans (c)**

Rs1576

Half-yearly दर 5%, 3 अवधियाँ ⇒ 10000 × $(1.05)^3$ = 11576.25 ⇒ CI ≈ **Rs 1576**।

Q13 **Ans (b)**

8%

2916/2500 = 1.1664 = $(1.08)^2$ ⇒ **R = 8%**।

Q14 **Ans (a)**

Rs18250.50

12000 × $(1.15)^3$ = 12000 × 1.520875 = **Rs 18250.50**।

Q15 **Ans (a)**

Rs3,08,000

3,00,000 × 1.1 = 3,30,000 − 50,000 = 2,80,000 ⇒ × 1.1 = **Rs 3,08,000**।

Q16 **Ans (b)**

Rs1860

12000 × 1.10 × 1.05 = 13,860 ⇒ CI = **Rs 1860**।

Q17 **Ans (d)**

Rs6272

5000 × $(1.12)^2$ = 5000 × 1.2544 = **Rs 6272**।

Q18 **Ans (b)**

Rs2,13,840

पहले वर्ष का ब्याज 18,000; 20% निकासी = 3,600 ⇒ शेष 1,94,400 ⇒ × 1.1 = **Rs 2,13,840**।

Q19 **Ans (d)**

Principal = Rs9,600 Annual Rate of Interest = 10%

14055.36/11616 = 1.21 = $(1.1)^2$ ⇒ R = 10%। P = 11616/1.21 = **Rs 9,600**।

Q20 **Ans (b)**

Rs7772.50

20000 × $(1.15)^2$ × (1 + 15%/3) = 20000 × 1.3225 × 1.05 = 27,772.50 ⇒ CI = **Rs 7772.50**।

Q21 **Ans (d)**

Rs13,222.40

40,000 × 1.08 × 1.12 × 1.10 = 53,222.40 ⇒ CI = **Rs 13,222.40**।

Q22 **Ans (c)**

Rs1,38,600

पहले वर्ष का ब्याज 12,000; 50% निकासी ⇒ शेष 1,26,000 ⇒ × 1.1 = **Rs 1,38,600**।

Q23 **Ans (a)**

Rs6, 655

उधार = 66,550 − 50,000 = 16,550। किस्त x: x/1.1 + x/1.21 + x/1.331 = 16,550।

x × (1.21 + 1.1 + 1)/1.331 = x × 3.31/1.331 = 16,550 ⇒ x = **Rs 6,655**।

Q24 **Ans (c)**

Rs5000

P = 5832/$(1.08)^2$ = 5832/1.1664 = **Rs 5000**।

Q25 **Ans (d)**

Rs4,630

बिक्री = 4000। निवेश पर राशि = 4000 × 1.21 = 4840।

अपेक्षित राशि = 0.75 × 4840 + 0.25 × 4000 = 3630 + 1000 = **Rs 4,630**।

Mock Set 02 Q26–Q36 · 16 Oct → 28 Oct

TOPIC · Compound Interest (CI) (2/2)

Q26 **A sum of Rs80,000 is invested at a compound interest rate of 7% per annum compounded quarterly. What is the amount after 1 year?**

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) ≈ Rs85,816.30 (b) ≈ Rs85,600
(c) ≈ Rs85,748.72 (d) ≈ Rs85,900.62

Q27 **Find the annual rate of compound interest at which a sum of Rs8,000 becomes Rs9,261 in 3 years.**

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 2% (b) 5% (c) 8% (d) 10%

Q28 Anurag and Bhavya have equal savings. Anurag invests all his savings at 10% compound interest per annum for 2 years. Bhavya invests $66\frac{2}{3}$% of her savings at R% simple interest per annum and the remaining $33\frac{1}{3}$% at 6% simple interest per annum, both for 2 years. If their interests are equal, what is R + $7\frac{1}{4}$?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 20% (b) 18% (c) 21% (d) 22%

Q29 The value of a sum of Rs6,400 increases to Rs8,100 in 2 years under compound interest. Calculate the rate of interest per annum.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 15.5% (b) 8.5% (c) 12.5% (d) 5.5%

Q30 A sum of money doubles itself in 5 years at compound interest. Find the approximate rate of interest per annum.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 10.87% (b) 14.87% (c) 21.87% (d) 19.87%

Q31 A remote district had a population of 2,50,000 which grew to 2,81,382 over a span of few years. If the average annual population growth rate was 4%, approximately how many years did it take to reach the new population?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 2 years (b) 3 years (c) 4 years (d) 5 years

Q32 A retailer borrows Rs2,00,000 from a bank at a 10% compound interest rate per annum for 2 years to set up a delivery system. After 2 years, the total amount paid includes a 15% service tax on the compound interest. He then distributes this total cost equally across 1000 deliveries. Estimate the average delivery cost (in Rs), rounded to the nearest rupee?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) Rs250 (b) Rs254 (c) Rs248 (d) Rs262

Q33 A sum of money becomes 3 times in 6 years at compound interest. Find the approximate annual rate of interest.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 10 % (b) 14 % (c) 17 % (d) 20 %

Q34 A flat valued at Rs5,00,000 appreciates annually at a rate of 8% compound interest. In how many full years will its value become at least Rs6,80,250?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 3 years (b) 4 years (c) 5 years (d) 6 years

Q35 A total of Rs12,000 is divided between Scheme A and Scheme B. RsP is invested in A at $12\frac{1}{2}$% simple interest per annum for 3 years and Rs(12,000 - P) in B at 20% compound interest per annum for 2 years. If Scheme B earns Rs64 more interest than Scheme A, find P.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) Rs6,000 (b) Rs6,400 (c) Rs6,800 (d) Rs7,200

Q36 A sum of Rs50,000 is invested for 3 years. For the first year, the interest is 10% per annum compounded annually; for the second year, it is 20% per annum compounded half-yearly; and for the final year, it is 20% per annum compounded quarterly. Find the approximate total amount after 3 years (Round your answer to the nearest rupee). (Take $1.05^4 \approx 1.2155$)

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) Rs99,280 (b) Rs80,311 (c) Rs80,892 (d) Rs1,11,372

ANSWER KEY · Mock Set 02

26 (c)	27 (b)	28 (a)	29 (c)	30 (b)
31 (b)	32 (c)	33 (d)	34 (b)	35 (b)
36 (c)				

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (c)

≈ Rs85,748.72

Quarterly दर = 1.75% ⇒ 80,000 × $(1.0175)^4$ ≈ 80,000 × 1.07186 ≈ **Rs 85,748.72**।

Q27 Ans (b)

5%

9261/8000 = $(21/20)^3$ ⇒ 1 + R = 1.05 ⇒ **R = 5%**।

Q28 **Ans (a)**

20%

Anurag का CI = 21% of SI Bhavya: (2/3)S × 2R% + (1/3)S × 12% = 21% of S ⇒ 4R/3 + 4 = 21 ⇒ R = 12.75।

R + 7¼ = 12.75 + 7.25 = **20%**।

Q29 **Ans (c)**

12.5%

8100/6400 = $(9/8)^2$ ⇒ 1 + R = 1.125 ⇒ **R = 12.5%**।

Q30 **Ans (b)**

14.87%

$(1 + R)^5 = 2$ ⇒ 1 + R = 2^(1/5) ≈ 1.1487 ⇒ R ≈ **14.87%**।

Q31 **Ans (b)**

3 years

$(1.04)^3$ = 1.124864 ⇒ 2,50,000 × 1.124864 ≈ 2,81,216 ≈ 2,81,382 ⇒ लगभग **3 वर्ष**।

Q32 **Ans (c)**

Rs248

CI = 2,00,000 × 0.21 = 42,000; service tax = 15% of 42,000 = 6,300।

कुल = 2,48,300 ⇒ प्रति delivery ≈ **Rs 248**।

Q33 **Ans (d)**

20 %

$(1 + R)^6 = 3$ ⇒ 1 + R = 3^(1/6) ≈ 1.2009 ⇒ R ≈ **20%**।

Q34 **Ans (b)**

4 years

$(1.08)^4$ = 1.36049 ⇒ 5,00,000 × 1.36049 ≈ 6,80,245 ≈ 6,80,250 ⇒ **4 वर्ष**।

Q35 **Ans (b)**

Rs6,400

A का SI = P × 12.5% × 3 = 0.375P; B का CI = (12000 − P) × 0.44।

0.44(12000 − P) − 0.375P = 64 ⇒ 5280 − 0.815P = 64 ⇒ **P = Rs 6,400**।

Q36 **Ans (c)**

Rs80,892

50,000 × 1.10 × $(1.10)^2$ × $(1.05)^4$ = 50,000 × 1.1 × 1.21 × 1.2155 ≈ **Rs 80,892**।

CHAPTER 10

Partnership

Capital × Time · Profit Sharing · Working Partner

27	1	1	3
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Partnership

01 लाभ ∝ पूँजी × समय
हर साझेदार की (पूँजी × महीने) निकालकर अनुपात बनाएँ।

02 Working partner
पहले management charge अलग करें, फिर शेष को पूँजी अनुपात में बाँटें।

03 पूँजी बदलने पर
हर अवधि का (पूँजी × महीने) अलग-अलग जोड़ें।

Mock Set 01 Q1–Q27 · 30 Sep → 28 Oct

TOPIC · Partnership

Q1 In a company, A is a working partner, and B is a sleeping partner. The investment of A is Rs12,000, and that of B is Rs20,000. The percentage of management charge is 10% of the total gain to be received by A. The total gain is Rs9,600. What is the total gain of A?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) Rs3,240 (b) Rs3,600 (c) Rs4,140 (d) Rs4,200

Q2 A and B began a joint venture by investing Rs20,000 and Rs25,000, respectively. B withdrew after four months, and C came in with an investment of Rs15,000. Four months later, A withdrew, and B re-entered with his former investment. Find the sharing ratio of their profits at the end of one year.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 4 : 8 : 3 (b) 4 : 5 : 3 (c) 16 : 10 : 3 (d) 10 : 12 : 7

Q3 P and Q enter into a partnership. P invests Rs8,000 for the whole year. Q invests Rs12,000 initially but withdraws his entire amount after some months. If the profit at the end of the year is divided in the ratio 4 : 3, for how many months was Q's money invested?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 10 months (b) 4 months (c) 6 months (d) 8 months

Q4 Three partners, P, Q, and R, have established a business venture. P invests three times the amount invested by Q, who, in turn, invests two-thirds of the amount of R. Given that the total annual profit earned from the business is Rs1,32,000, find the share of Q in the profit.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) Rs20,000 (b) Rs48,000 (c) Rs36,000 (d) Rs24,000

Q5 Two individuals, A and B, share their profit in a ratio of 3:2. A third person, C, is given a one-fourth share of the profit and contributes Rs12,000 as his capital to the business. What is the capital contribution of B?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) Rs18,000 (b) Rs14,400 (c) Rs21,600 (d) Rs15,000

Q6 A and B invest in a business in a ratio of 3:2. Five percent of the total profit is donated to charity, and A's share amounts to Rs855. What is the total profit?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) Rs1,425 (b) Rs1,500 (c) Rs1,537 (d) Rs1,700

Q7 A and B started a business with capital in the ratio 5 : 9. At the end of 8 months, A withdrew his capital. If they receive profits in the ratio 4 : 9, for how many months was B's capital used in the business?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 6 months (b) 9 months (c) 12 months (d) 10 months

Q8 A and B started a business jointly. A's investment was thrice that of B, and the period of his investment was twice that of B. If B received Rs4,000 as profit, then what was the total profit?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) Rs24,000 (b) Rs16,000 (c) Rs20,000 (d) Rs28,000

Q9 In a partnership, A invests $\frac{1}{6}$ of the capital for $\frac{1}{6}$ of the time, B invests $\frac{1}{3}$ of the capital for $\frac{1}{3}$ of the time, and C, the rest of the capital for the whole time. Out of a profit of Rs2,300, find the B's share.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) Rs400 (b) Rs300 (c) Rs600 (d) Rs800

Q10 The partnership consists of A and B. A gets 15% of the annual profit for his contribution to managing the business. The remaining profit is shared among A and B in the ratio of 2:3. Find out the total yearly profit when the share of B exceeds that of A by Rs1,200.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) Rs70,000 (b) Rs45,000 (c) Rs66,000 (d) Rs60,000

Q11 P and Q started their business by investing Rs16,000 and Rs15,000, respectively. After 3 months, P withdrew Rs5,000 from his investment, whereas Q invested another Rs5,000 in his investment. After another 3 months, C joined the business by investing Rs21,000. Calculate the share of C out of the annual profit of Rs24,900.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) Rs5,600 (b) Rs6,300 (c) Rs7,200 (d) Rs8,100

Q12 A and B invest in a business such that A's capital is used for 7 months and B's for 9 months. If the profit is shared in the ratio 7 : 10 and A's investment is Rs1,800 less than B's, find the total capital invested by both.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Rs38,230 (b) Rs34,200 (c) Rs27,220 (d) Rs44,100

Q13 A, B, and C rent a field for Rs5,250. A puts 20 oxen for 4 months, B puts 25 oxen for 2 months, and C puts 30 oxen for 5 months. What part of the rent should B pay?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) Rs850.12 (b) Rs920.25 (c) Rs750.55 (d) Rs937.50

Q14 A, B, and C start a business with investments in the ratio 3 : 2 : 4. After one year, A withdraws half of his capital and B doubles his capital. After one more year, C withdraws $\frac{1}{4}$ of his capital. At the end of 3 years, what is the ratio of their profits?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 6 : 10 : 11 (b) 10 : 18 : 15
(c) 9 : 14 : 22 (d) 14 : 11 : 19

Q15 X and Y start a business with capital in the ratio 5 : 6. At the end of 8 months, X withdraws his capital. If they receive profits in the ratio 5 : 9, for how long was Y's capital used in the business?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 10 months (b) 12 months (c) 14 months (d) 15 months

Q16 A and B enter into a partnership with capitals in the ratio 7:8. At the end of 7 months, A withdraws his entire capital. B also withdraws his capital after some months. If the ratio of their annual profit is 49:40, for how many months was B's capital invested in the business?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 4 months (b) 5 months (c) 6 months (d) 8 months

Q17 A and B started a business by investing capital in the ratio 5 : 3. At the end of 6 months, C joined them with an investment equal to the average of A and B. If the profit at the end of the year is Rs18,000, find C's share.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) Rs3,600 (b) Rs4,200 (c) Rs5,000 (d) Rs6,100

Q18 A, B, and C started a partnership by investing capital such that A's capital is 125% of B's capital and B's capital is 80% of C's capital. A stayed in the business for the full year, B left after 9 months, and C joined 3 months after the start. Find the ratio of their profit shares at the end of the year.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 4 : 12 : 3 (b) 10 : 9 : 12
(c) 20 : 12 : 15 (d) 9 : 12 : 15

Q19 A and B form a partnership by making investments in the ratio of 4 : 7. Five months later, A withdraws Rs. 1,000, and B withdraws Rs. 2,000. After one year, the profit share is 29 : 49. Determine the initial investment made by A.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) Rs5,200 (b) Rs3,000 (c) Rs4,500 (d) Rs6,000

Q20 Business partners A and B have made an initial investment of Rs4,000 and Rs5,000, respectively. A increased his investment after four months by Rs1,000, while B decreased his investment after four months by Rs1,000. C joined after another four months with Rs6,000. Determine the ratio of profits to be shared amongst A, B, and C at the end of the year.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 14 : 13 : 12 (b) 12 : 11 : 2
(c) 14 : 13 : 6 (d) 11 : 12 : 6

Q21 Partnership between A and B is such that A invests Rs2,500 more than B. B's investment period is 6 months, whereas A's is 10 months. Out of the total profit of Rs5,300, A's profit share comes to Rs3,500. What was B's investment?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) Rs18,000 (b) Rs15,000 (c) Rs24,000 (d) Rs20,000

Q22 A, B, and C started a business with capital in the ratio 2:3:5. At the end of 4 months, A increases his capital by 50%, and B decreases his capital by $33\frac{1}{3}$%. Find the profit ratio at the end of the year.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 11 : 13 : 20 (b) 14 : 13 : 30
(c) 8 : 7 : 15 (d) 8 : 9 : 15

Q23 A, B, and C are partners in a business. A invested a certain amount for 6 months and claims $\frac{1}{8}$ of the profit. B invested a certain amount for 9 months and claims $\frac{1}{3}$ of the profit. C invested Rs1,560 for 12 months. Find the amount invested by A.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) Rs800 (b) Rs780 (c) Rs720 (d) Rs640

Q24 A and B invested in a business in the ratio 3:2. If 5% of total profit is donated to a relief fund and A's share of profit is Rs4,275, find the total profit.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) Rs7,000 (b) Rs7,500 (c) Rs8,200 (d) Rs8,000

Q25 Three people, namely Tanistha, Lisa and Tarini start a garment business in partnership. Tanistha invests $\frac{1}{5}$ of the capital for $\frac{2}{3}$ of the total time, Lisa invests $\frac{2}{5}$ of the capital for $\frac{1}{4}$ of the total time and Tarini invests the rest for the entire time. If the total profit from this business is Rs. 8062, find out Lisa's share in the profit.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) Rs. 1112 (b) Rs. 1390 (c) Rs. 1410 (d) Rs. 1468

Q26 A and B are partners in a business. A contributes 1/3 of the capital for 9 months and B receives 2/5 of the total profit. For how long was B's money used in the business?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 4 months (b) 6 months (c) 3 months (d) 5 months

Q27 In a partnership, A invests Rs4,000 for the whole year. B starts at Rs6,000 and increases to Rs8,000 after 4 months. C joins after 9 months with Rs10,000. What is the ratio by which the annual profit should be divided?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 12 : 19 : 15 (b) 24 : 44 : 15
(c) 12 : 22 : 15 (d) 24 : 38 : 15

ANSWER KEY · Mock Set 01				
1 (d)	2 (b)	3 (c)	4 (d)	5 (b)
6 (b)	7 (d)	8 (d)	9 (a)	10 (d)
11 (b)	12 (b)	13 (d)	14 (a)	15 (b)
16 (b)	17 (a)	18 (c)	19 (b)	20 (c)
21 (b)	22 (c)	23 (c)	24 (b)	25 (b)
26 (c)	27 (b)			

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (d)**

Rs4,200

A का management charge = 10% of 9600 = 960। शेष 8640 पूँजी अनुपात 12000 : 20000 = 3 : 5 में।

A का हिस्सा = 8640 × 3/8 = 3240 ⇒ A का कुल लाभ = 3240 + 960 = **Rs 4,200**।

Q2 **Ans (b)**

4 : 5 : 3

A: 20000 × 8 = 1,60,000; B: 25000 × 4 + 25000 × 4 = 2,00,000; C: 15000 × 8 = 1,20,000।

अनुपात = 16 : 20 : 12 = **4 : 5 : 3**।

Q3 **Ans (c)**

6 months

8000 × 12 : 12000 × t = 4 : 3 ⇒ 96000 × 3 = 48000t ⇒ **t = 6 महीने**।

Q4 **Ans (d)**

Rs24,000

R = 3 मानें ⇒ Q = 2, P = 6 ⇒ अनुपात 6 : 2 : 3 (कुल 11)।

Q का हिस्सा = 1,32,000 × 2/11 = **Rs 24,000**।

Q5 **Ans (b)**

Rs14,400

C = 1/4 ⇒ A + B = 3/4 को 3 : 2 में ⇒ A = 9/20, B = 6/20, C = 5/20।

B : C = 6 : 5 ⇒ B की पूँजी = 12000 × 6/5 = **Rs 14,400**।

Q6 **Ans (b)**

Rs1,500

दान के बाद 95% बचा ⇒ A = 0.95P × 3/5 = 855 ⇒ 0.57P = 855 ⇒ **P = Rs 1,500**।

Q7 **Ans (d)**

10 months

5 × 8 : 9 × t = 4 : 9 ⇒ 40 × 9 = 36t ⇒ **t = 10 महीने**।

Q8 **Ans (d)**

Rs28,000

A : B = (3 × 2) : (1 × 1) = 6 : 1 ⇒ B का 1 भाग = 4000 ⇒ कुल = 7 × 4000 = **Rs 28,000**।

Q9 **Ans (a)**

Rs400

A: 1/6 × 1/6 = 1/36; B: 1/3 × 1/3 = 1/9; C: (1 - 1/6 - 1/3) × 1 = 1/2। ×36 ⇒ 1 : 4 : 18 (कुल 23) ⇒ B = 2300 × 4/23 = **Rs 400**।

Q10 **Ans (d)**

Rs60,000

A = 15% + 85% × 2/5 = 15% + 34% = 49%; B = 85% × 3/5 = 51%। अंतर 2% = 1200 ⇒ कुल लाभ = **Rs 60,000**।

Q11 **Ans (b)**

Rs6,300

P: 16000 × 3 + 11000 × 9 = 1,47,000; Q: 15000 × 3 + 20000 × 9 = 2,25,000; C: 21000 × 6 = 1,26,000।

C का हिस्सा = 24900 × 126/498 = **Rs 6,300**।

Q12 **Ans (b)**

Rs34,200

7A : 9B = 7 : 10 ⇒ A/B = 9/10 ⇒ A = 0.9B, अंतर 0.1B = 1800 ⇒ B = 18000, A = 16200।

कुल = **Rs 34,200**।

Q13 **Ans (d)**

Rs937.50

Ox-months: A = 80, B = 50, C = 150 (कुल 280) ⇒ B = 5250 × 50/280 = **Rs 937.50**।

Q14 **Ans (a)**

6 : 10 : 11

3 वर्ष की पूँजी: A = 3 + 1.5 + 1.5 = 6; B = 2 + 4 + 4 = 10; C = 4 + 4 + 3 = 11 ⇒ **6 : 10 : 11**।

Q15 **Ans (b)**

12 months

5 × 8 : 6 × t = 5 : 9 ⇒ 360 = 30t ⇒ **t = 12 महीने**।

Q16 **Ans (b)**

5 months

7 × 7 : 8 × t = 49 : 40 ⇒ 49/(8t) = 49/40 ⇒ 8t = 40 ⇒ **t = 5 महीने**।

Q17 **Ans (a)**

Rs3,600

A = 5, B = 3 (12 महीने), C = (5 + 3)/2 = 4 (6 महीने) ⇒ 60 : 36 : 24।
C = 18000 × 24/120 = **Rs 3,600**।

Q18 **Ans (c)**

20 : 12 : 15

C = 100 ⇒ B = 80, A = 125% of 80 = 100।
A = 100 × 12 = 1200, B = 80 × 9 = 720, C = 100 × 9 = 900 ⇒ **20 : 12 : 15**।

Q19 **Ans (b)**

Rs3,000

A = 4x, B = 7x। A: 4x × 5 + (4x - 1000) × 7 = 48x - 7000; B: 7x × 5 + (7x - 2000) × 7 = 84x - 14000।
49(48x - 7000) = 29(84x - 14000) ⇒ 84x = 63000 ⇒ x = 750 ⇒ A = **Rs 3,000**।

Q20 **Ans (c)**

14 : 13 : 6

A: 4000 × 4 + 5000 × 8 = 56,000; B: 5000 × 4 + 4000 × 8 = 52,000; C: 6000 × 4 = 24,000।
अनुपात = **14 : 13 : 6**।

Q21 **Ans (b)**

Rs15,000

लाभ A : B = 3500 : 1800 = 35 : 18। (B + 2500) × 10 : 6B = 35 : 18 ⇒ 180(B + 2500) = 210B।
30B = 4,50,000 ⇒ B = **Rs 15,000**।

Q22 **Ans (c)**

8 : 7 : 15

A: 2 × 4 + 3 × 8 = 32; B: 3 × 4 + 2 × 8 = 28; C: 5 × 12 = 60 ⇒ 32 : 28 : 60 = **8 : 7 : 15**।

Q23 **Ans (c)**

Rs720

C का हिस्सा = 1 - 1/8 - 1/3 = 13/24 ↔ 1560 × 12 = 18,720 ⇒ पूरा = 18,720 × 24/13 = 34,560।
A का हिस्सा = 34,560/8 = 4320 = A × 6 ⇒ A = **Rs 720**।

Q24 **Ans (b)**

Rs7,500

0.95P × 3/5 = 4275 ⇒ 0.57P = 4275 ⇒ **P = Rs 7,500**।

Q25 **Ans (b)** **DEBATABLE**

Rs. 1390

पूँजी × समय: Tanistha = 1/5 × 2/3 = 2/15, Lisa = 2/5 × 1/4 = 1/10, Tarini = 2/5 × 1 = 2/5 ⇒ ×30: 4 : 3 : 12।
इस गणना से Lisa = 8062 × 3/19 ≈ Rs 1273।

⚠ **Key Note:** Debatable – दिए गए आँकड़ों से Lisa का हिस्सा ≈ Rs 1273 आता है, जो किसी विकल्प में नहीं है। SSC key **(b) Rs 1390** है।

Q26 **Ans (c)**

3 months

A की पूँजी 1/3 (9 महीने), B की 2/3 (t महीने)। लाभ A : B = 3 : 2।
(1/3 × 9) : (2/3 × t) = 3 : 2 ⇒ 2t/3 = 2 ⇒ **t = 3 महीने**।

Q27 **Ans (b)**

24 : 44 : 15

A: 4000 × 12 = 48,000; B: 6000 × 4 + 8000 × 8 = 88,000; C: 10000 × 3 = 30,000।
48 : 88 : 30 = **24 : 44 : 15**।

CHAPTER 11

Mixture & Alligation

Alligation Rule · Replacement · Mean Price

38	1	2	4
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Mixture & Alligation

01 Alligation
(महँगा - औसत) : (औसत - सस्ता) = सस्ते : महँगे की मात्रा।

02 Replacement formula
बचा शुद्ध द्रव = मूल × $(1 - x/V)^n$।

03 CP पर बेचकर लाभ
पानी : दूध = लाभ% : 100।

04 एक घटक स्थिर
जो घटक नहीं बदला (जैसे copper/dye), उसी से नई कुल मात्रा निकालें।

Mock Set 01 Q1–Q25 · 30 Sep → 15 Oct

TOPIC · Mixture and Alligation (1/2)

Q1 A vessel contains 90 litres of a mixture of milk and water in the ratio 8:7. How many litres of the mixture should be removed and replaced with pure water so that the ratio of milk to water in the resulting mixture becomes 4:5?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 15 litres (b) 12 litres (c) 6 litres (d) 9 litres

Q2 A can contains a mixture of two liquids P and Q in the ratio 8:7. If 5 liters of the mixture is taken out and the remaining part of the can is filled with Q, then the ratio of P and Q becomes 2:3. Find how many liters of liquid P was there in the can initially?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) $\frac{17}{3}$ liters (b) $\frac{22}{3}$ liters
(c) $\frac{28}{3}$ liters (d) $\frac{32}{3}$ liters

Q3 A merchant has a total of 1000 kg of sugar. He sells part of it at a profit of 8% and the remaining at a profit of 18%. If his overall profit is 14%, how much of the sugar was sold at 18% profit?

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 400 kg (b) 560 kg (c) 600 kg (d) 640 kg

Q4 A container has 160 litres of a mixture of milk and water in the ratio 5:3. First, 32 litres of the mixture are removed and replaced with an equal volume of pure water. Then, 24 litres of the resulting mixture are removed and replaced with an equal volume of pure milk. Find the final ratio of milk to water in the container.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 63 : 17 (b) 24 : 13 (c) 15 : 11 (d) 23 : 17

Q5 Two varieties of wheat costing Rs36/kg and Rs54/kg are mixed to obtain a mixture worth Rs45/kg. If 6 kg of the cheaper wheat are added to the mixture, the ratio of cheaper wheat to costlier wheat becomes 3:2. Find the original quantity of costlier wheat.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 8 kg (b) 12 kg (c) 14 kg (d) 6 kg

Q6 A Mumbai grocer has rice at Rs30/kg and Rs50/kg. In what ratio should he mix them so that he can sell the mixture at Rs36/kg with no profit or loss?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 4:1 (b) 7:3 (c) 6:1 (d) 9:4

Q7 An alloy contains 35% copper, 25% zinc and 40% nickel. How much copper (in kg) should be added to 20 kg of the alloy so that the new alloy contains 50% copper?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 8 kg (b) 6 kg (c) 12 kg (d) 16 kg

Q8 A vessel contains 240 litres of a mixture of milk and water in the ratio 7:5. First, 40 litres of the mixture are removed and replaced with an equal volume of pure water. Then, 60 litres of the resulting mixture are removed and replaced with an equal volume of pure milk. Find the final ratio of milk to water in the vessel.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 62 : 41 (b) 21 : 17 (c) 97 : 83 (d) 59 : 37

Q9 A dishonest milkman gains 50% by selling diluted milk at the cost price. Find the percentage of water in the mixture.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 17⅓% (b) 25%
(c) 20% (d) 33⅓%

Q10 A vessel contains 240 litres of a mixture of milk and water in the ratio 7:5. First, 40 litres of the mixture is removed and replaced with an equal volume of pure water. Then, 60 litres of the resulting mixture is removed and replaced with an equal volume of pure milk. What is the quantity of milk in the vessel at the end?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 92.5 litres (b) 133.0 litres
(c) 140.0 litres (d) 147.5 litres

Q11 Find the quantity of water added to 50 litres of a 20% alcohol solution to reduce alcohol concentration to 10%.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 40L (b) 50L (c) 25L (d) 30L

Q12 A vessel contains 500 litres of an aqueous solution with a 24% salt concentration by volume. The following sequential operations are performed: • 100 litres of the solution is removed and replaced with an equal volume of pure water. • 50 litres of this newly formed solution is removed and replaced with an equal volume of a 60% salt solution. What is the final percentage of salt by volume in the resulting mixture?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 19.20% (b) 21.12% (c) 23.28% (d) 25.20%

Q13 A trader purchased 25 kg of tea at Rs240 per kg and another 15 kg at Rs300 per kg. After mixing both varieties, at what price per kg should the mixture be sold to earn a profit of 25%?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) Rs228.225 per kg (b) Rs312.198 per kg
(c) Rs250.182 per kg (d) Rs328.125 per kg

Q14 The ratio of milk and water in a mixture is 5:3. How much fraction of the mixture must be drawn off and substituted by water so that the ratio of milk and water in the mixture becomes 1:1?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) $\frac{1}{2}$ (b) $\frac{1}{7}$ (c) $\frac{2}{5}$ (d) $\frac{1}{5}$

Q15 An artisan in Shantiniketan is preparing a large vat of natural indigo dye for traditional Batik fabrics. The vat initially contains 80 liters of a dye-to-water mixture in the ratio 3:13. To achieve a deeper and richer colour, the artisan boils the mixture to evaporate some of the water. Once done, the new ratio of dye to water in the vat is 1:3. How many liters of water were evaporated during the boiling process?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 20 liters (b) 21 liters (c) 22 liters (d) 24 liters

Q16 A tank contains 600 litres of an aqueous solution with a 40% salt concentration by volume. Assume that the component volumes are perfectly additive (mixing causes no volume contraction), and that the solution is thoroughly stirred to maintain complete homogeneity after each step. The following sequential operations are performed: • 120 litres of the solution is removed and replaced with an equal volume of pure water. • This exact replacement process is repeated once more. • Then, 60 litres of the resulting solution is removed and replaced with an equal volume of liquid pure salt solute. What is the final percentage of salt by volume in the resulting mixture?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 23.04% (b) 25.60% (c) 33.04% (d) 35.60%

Q17 A vessel contains a mixture of milk and water in the ratio of 7:3. If 20 litres of the mixture are removed and replaced with an equal volume of pure water, the ratio of milk to water becomes 7:5. Find the original quantity of the mixture in the vessel.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 98 litres (b) 103 litres (c) 120 litres (d) 115 litres

Q18 A dishonest milkman sells his mixture at the cost price and gains 60%. Find the percentage of water in the mixture.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 42.5% (b) 35% (c) 37.5% (d) 46%

Q19 The ratio of milk and water in a vessel is 8:5. If we add 44 liters of milk and 44 liters of water, then the quantity of milk becomes 28.56% more than the quantity of water. Find the initial quantity of water?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 40 liters (b) 45 liters (c) 48 liters (d) 50 liters

Q20 A vessel has 45 liters of a solution of alcohol and water, having 60% alcohol. How many liters of the solution must be withdrawn from the vessel and replaced by the same quantity of water so that the resulting solution would have 35% alcohol?

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 15.25 liters (b) 18.75 liters
(c) 20.50 liters (d) 23.85 liters

Q21 A container holds a mixture of milk and water in the ratio 7:5. A worker draws off 24 liters of this mixture and refills the container with 24 liters of a pre-mixed blend of milk and water in a 1:1 ratio. If the final ratio of milk to water in the container becomes 17:13, what was the initial volume of the mixture (in liters.)?

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 108 (b) 120 (c) 144 (d) 180

Q22 A trader mixes two grades of dry fruits costing Rs600 per kg and Rs900 per kg, respectively. The resulting mixture is sold at Rs1000 per kg, yielding a profit of 25%. If the quantity of the costlier grade exceeds the quantity of the cheaper grade by 12 kg, find the total quantity of the mixture.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 18 kg (b) 24 kg (c) 36 kg (d) 48 kg

Q23 A milkman sells his milk at the cost price but mixes water to earn a 25% profit. What percentage of the final mixture is water?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 25% (b) 40% (c) 50% (d) 20%

Q24 A tank initially contains 200 litres of a mixture of alcohol and water in the ratio 9:11. A certain volume of the mixture is removed and replaced with an equal volume of pure alcohol, making the new ratio of alcohol to water 3:2. Approximately how many litres of the mixture were replaced (rounded to two decimal places)?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 54.55 litres (b) 51.25 litres
(c) 67.05 litres (d) 35.55 litres

Q25 Pratiksha is preparing the soil for a new batch of strawberry planters and uses two different types of organic potting mix: Mix A contains coco peat and vermicompost in the ratio 3:4, while mix B contains coco peat and vermicompost in the ratio 5:9. If Pratiksha takes equal weights of Mixes A and B to blend them together, what will be the new ratio of coco peat to vermicompost in the final blend?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 2:3 (b) 4:11 (c) 11:17 (d) 13:19

ANSWER KEY · Mock Set 01				
1 (a)	2 (d)	3 (c)	4 (d)	5 (b)
6 (b)	7 (b)	8 (d)	9 (d)	10 (d)
11 (a)	12 (c)	13 (d)	14 (d)	15 (a)
16 (c)	17 (c)	18 (c)	19 (a)	20 (b)
21 (b)	22 (c)	23 (d)	24 (a)	25 (c)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (a)**

15 litres

दूध = 48 L, पानी = 42 L। x L मिश्रण निकालने पर दूध घटता है 8x/15।
48 - 8x/15 = 90 × 4/9 = 40 ⇒ 8x/15 = 8 ⇒ **x = 15 litres**।

Q2 **Ans (d)**

$\frac{32}{3}$ liters

कुल T ⇒ P = 8T/15। 5 L निकालकर Q भरने पर P = 8(T - 5)/15, कुल फिर T।
8(T - 5)/15 = 2T/5 ⇒ 8T - 40 = 6T ⇒ T = 20 ⇒ P = 8 × 20/15 = **32/3 litres**।

Q3 **Ans (c)**

600 kg

Alligation: 8% और 18% → 14% ⇒ (18 - 14) : (14 - 8) = 4 : 6।
18% वाली चीनी = 1000 × 6/10 = **600 kg**।

Q4 **Ans (d)**

23 : 17

दूध 100, पानी 60। 32 L (20%) निकालकर पानी: दूध 80, पानी 48 + 32 = 80।
24 L (15%) निकालकर दूध: दूध 68 + 24 = 92, पानी 68 ⇒ 92 : 68 = **23 : 17**।

Q5 **Ans (b)**

12 kg

Alligation: (54 - 45) : (45 - 36) = 1 : 1 ⇒ दोनों x kg।
(x + 6)/x = 3/2 ⇒ **x = 12 kg**।

Q6 **Ans (b)**

7:3

Alligation: (50 - 36) : (36 - 30) = 14 : 6 = **7 : 3**।

Q7 **Ans (b)**

6 kg

Copper = 35% of 20 = 7 kg। (7 + x)/(20 + x) = 1/2 ⇒ 14 + 2x = 20 + x ⇒ **x = 6 kg**।

Q8 **Ans (d)**

59 : 37

दूध 140, पानी 100। 40 L (1/6) निकालकर पानी: दूध 116.67, पानी 83.33 + 40 = 123.33।
60 L (1/4) निकालकर दूध: दूध 87.5 + 60 = 147.5, पानी 92.5 ⇒ **59 : 37**।

Q9 **Ans (d)**

$33\frac{1}{3}\%$

CP पर बेचकर 50% लाभ ⇒ पानी : दूध = 50 : 100 = 1 : 2।
मिश्रण में पानी = 1/3 = **33⅓%**।

Q10 **Ans (d)**

147.5 litres

(Q.8 जैसा) अंत में दूध = 140 × 5/6 × 3/4 + 60 = 87.5 + 60 = **147.5 litres**।

Q11 **Ans (a)** DEBATABLE

40L

Alcohol = 20% of 50 = 10 L। 10% सांद्रता के लिए कुल = 100 L ⇒ जोड़ा गया पानी = 50 L।

⚠ **Key Note:** Debatable – सही गणना से उत्तर **50 L (b)** आता है। SSC key ने (a) 40 L दिया है।

Q12 **Ans (c)**

23.28%

नमक = 24% of 500 = 120 L। 100 L (20%) निकालकर पानी: 96 L।
50 L (10%) निकालकर 60% घोल: 96 × 0.9 + 30 = 116.4 L ⇒ 116.4/500 = **23.28%**।

Q13 **Ans (d)**

Rs328.125 per kg

कुल लागत = 25 × 240 + 15 × 300 = 10,500 ⇒ प्रति kg = 262.5।
25% लाभ पर = 262.5 × 1.25 = **Rs 328.125 प्रति kg**।

Q14 **Ans (d)**

$\frac{1}{5}$

दूध = 5/8। (5/8)(1 - f) = 1/2 ⇒ 1 - f = 4/5 ⇒ **f = 1/5**।

Q15 **Ans (a)**

20 liters

Dye = 80 × 3/16 = 15, पानी = 65। नया अनुपात 1 : 3 ⇒ पानी = 45।
वाष्पित पानी = 65 - 45 = **20 litres**।

Q16 **Ans (c)**

33.04%

नमक = 240 L। 120 L (20%) दो बार निकालकर पानी: 240 × 0.8^2 = 153.6 L।
60 L (10%) निकालकर शुद्ध नमक: 153.6 × 0.9 + 60 = 198.24 ⇒ 198.24/600 = **33.04%**।

Q17 **Ans (c)**

120 litres

दूध का अंश 7/10 → 7/12। (7/10)(1 - 20/V) = 7/12 ⇒ 1 - 20/V = 5/6 ⇒ **V = 120 litres**।

Q18 **Ans (c)**

37.5%

पानी : दूध = 60 : 100 ⇒ पानी = 60/160 × 100 = **37.5%**।

Q19 **Ans (a)**

40 liters

दूध 8x, पानी 5x। (8x + 44) = 1.2856(5x + 44) ⇒ 8x + 44 = 6.428x + 56.57 ⇒ x ≈ 8।
प्रारंभिक पानी = 5 × 8 = **40 litres**।

Q20 **Ans (b)**

18.75 liters

0.6 × (1 - x/45) = 0.35 ⇒ 1 - x/45 = 7/12 ⇒ x = 45 × 5/12 = **18.75 litres**।

Q21 **Ans (b)**

120

दूध = 7V/12। 24 L निकालकर 1 : 1 मिश्रण (12 L दूध) डाला: 7(V - 24)/12 + 12 = 17V/30।
7V/12 - 17V/30 = 2 ⇒ V/60 = 2 ⇒ **V = 120**।

Q22 **Ans (c)**

36 kg

मिश्रण का CP = 1000/1.25 = 800। Alligation: (900 - 800) : (800 - 600) = 1 : 2।
सस्ता x, महँगा 2x ⇒ अंतर x = 12 ⇒ कुल = 3x = **36 kg**।

Q23 **Ans (d)**

20%

पानी : दूध = 25 : 100 ⇒ पानी = 25/125 = **20%**।

Q24 **Ans (a)**

54.55 litres

Alcohol 90, पानी 110। x L बदलने पर पानी = 110(1 - x/200)। नया अनुपात 3 : 2 ⇒ पानी = 80।
1 - x/200 = 8/11 ⇒ x = 200 × 3/11 ≈ **54.55 litres**।

Q25 **Ans (c)**

11:17

बराबर वज़न (1 kg) लें: Coco = 3/7 + 5/14 = 11/14; Vermicompost = 4/7 + 9/14 = 17/14 ⇒ **11 : 17**।

Mock Set 02 Q26–Q38 · 15 Oct → 28 Oct

TOPIC · Mixture and Alligation (2/2)

Q26 **A mango juice is made by mixing water and mango concentrate in the ratio 9:7. If x liters of water and 3x liters of mango concentrate is mixed in 160 liters of mango juice, then the new ratio becomes 13:14. What is the quantity of the new mango juice (in liters)?**

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 197 liters (b) 201 liters (c) 208 liters (d) 216 liters

Q27 **A gold biscuit weighing 11 kg contained only 82% gold and the rest copper. If it was alloyed with another gold biscuit and the resulting alloy had a mass of 28 kg and contained 90% gold, then find the approximate percentage of gold in the second biscuit?**

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 90.5% (b) 92.7% (c) 94.8% (d) 95.2%

Q28 **A shopkeeper mixes 20 kg of sugar at Rs. 30/kg with 40 kg at Rs. 50/kg. Find the price per kg of the mixture.**

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 43.33 (b) 40 (c) 42 (d) 44

Q29 In a chemistry lab, there are two glass beakers labeled as X and Y. X is filled with a certain volume of chemical 'M' while Y is filled with an equal volume of chemical 'N'. It is known that 'M' and 'N' do not react with one another instantly to form any other compounds. Netra transfers $\frac{1}{2}$ of the content of X to Y, at first. She then transfers $\frac{7}{10}$ of the content of Y to X. Finally, she transfers $\frac{4}{5}$ of the content of X to Y. All these transfers are consecutive. Find the ratio of M to N (by volume) in Y, after the final transfer.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 17:14 (b) 23:27 (c) 41:49 (d) 83:86

Q30 Tea costing Rs126 per kg and Rs135 per kg are mixed with a third variety in the ratio 1: 1: 2. If the resulting mixture is valued at Rs153 per kg, find the price per kg of the third variety.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) Rs167.50 per kg (b) Rs170 per kg
(c) Rs175.50 per kg (d) Rs180 per kg

Q31 Three vessels X, Y and Z contain distinct mixtures of absolute alcohol and pure water in the ratios 3:2, 4:1 and 7:3, respectively. Pranita extracts liquid from vessels X, Y and Z in the volume ratio a:b:c and mixes them together in another vessel P. The resulting mixture in P contains alcohol and water in a 3:1 ratio. If the volume of the liquid taken out from Z is exactly 2.5 times that taken from X, determine a:b:c.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 2:9:11 (b) 2:11:5 (c) 3:9:4 (d) 3:4:7

Q32 Three liquids A, B and C are mixed in a vessel in the ratio 7 : 8 : 11, respectively. 1/3 rd of the mixture is then taken out of the vessel and kept aside for an experiment. 1/2 of the remaining quantity in the vessel gets accidentally spilled. Then, some quantity of liquid B is again added to the vessel so that the ratio of the three liquids in this new mixture becomes 7 : 12 : 11, respectively. If the quantity of the new mixture in the vessel is 60 ml, what was the quantity of the original mixture in the vessel at the beginning?

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 156 ml (b) 160 ml (c) 164 ml (d) 180 ml

Q33 A 25-litre solution contains acid and water in the ratio 3:2. How much acid must be added to make the ratio 4:1?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 10 litres (b) 15 litres (c) 18 litres (d) 25 litres

Q34 A mixture of acid and water contains 20 percent acid. When 10 liters of water is added to the mixture, then the percentage of acid becomes 15 percent. What is the original quantity of mixture?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 25 liters (b) 30 liters (c) 35 liters (d) 40 liters

Q35 Tea worth Rs120 per kg and Rs140 per kg are mixed with a third variety in the ratio 1 : 1 : 2. If the mixture costs Rs150 per kg, find the price per kg of the third variety.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) Rs135 per kg (b) Rs150 per kg
(c) Rs185 per kg (d) Rs170 per kg

Q36 A container holds 12 litres of pure honey. First, 3 litres are removed and replaced with water. Then, again 3 litres of the new mixture are removed and replaced with water. What is the ratio of honey left in the container to the original quantity?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 9 : 16 (b) 4 : 9 (c) 16 : 25 (d) 25 : 36

Q37 An alloy of zinc, copper, and tin contains 70% zinc and 20% copper by weight. A second alloy containing only zinc and tin is melted and mixed with the first alloy. The resulting mixture contains 56% zinc and 14% copper by weight. Find the percentage of zinc in the second alloy.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 21.33% (b) 22.33% (c) 23.33% (d) 24.33%

Q38 Liquid A is available in 750 ml containers and contains 9% of a chemical substance. Liquid B is available in 500 ml containers and contains 14% of the same chemical substance. If 2 containers of Liquid A and 3 containers of Liquid B are mixed, what is the percentage of the chemical substance in the resulting mixture?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 12.5% (b) 10.5% (c) 13.5% (d) 11.5%

ANSWER KEY · Mock Set 02				
26 (d)	27 (d)	28 (a)	29 (d)	30 (c)
31 (b)	32 (a)	33 (d)	34 (b)	35 (d)
36 (a)	37 (c)	38 (d)		

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 **Ans (d)**

216 liters

पानी 90, concentrate 70। (90 + x)/(70 + 3x) = 13/14 ⇒ 1260 + 14x = 910 + 39x ⇒ x = 14।

नई मात्रा = 160 + 4 × 14 = **216 litres**।

Q27 **Ans (d)**

95.2%

पहले में सोना = 0.82 × 11 = 9.02 kg; कुल सोना = 0.9 × 28 = 25.2 kg।

दूसरे (17 kg) में सोना = 16.18 kg ⇒ 16.18/17 ≈ **95.2%**।

Q28 **Ans (a)**

43.33

(20 × 30 + 40 × 50)/60 = 2600/60 = **Rs 43.33**।

Q29 **Ans (d)**

83:86

X में M = 1, Y में N = 1। (1) X का 1/2 Y में: X = M 0.5; Y = M 0.5, N 1।

(2) Y का 7/10 X में: X = M 0.85, N 0.7; Y = M 0.15, N 0.3।

(3) X का 4/5 Y में: Y = M 0.15 + 0.68 = 0.83, N 0.3 + 0.56 = 0.86 ⇒ **83 : 86**।

Q30 **Ans (c)**

Rs175.50 per kg

(126 + 135 + 2x)/4 = 153 ⇒ 261 + 2x = 612 ⇒ x = **Rs 175.50**।

Q31 **Ans (b)**

2:11:5

Alcohol अंश: X = 0.6, Y = 0.8, Z = 0.7, लक्ष्य 0.75; c = 2.5a।

0.6a + 0.8b + 1.75a = 0.75(3.5a + b) ⇒ 0.05b = 0.275a ⇒ b = 5.5a ⇒ a : b : c = 1 : 5.5 : 2.5 = **2 : 11 : 5**।

Q32 **Ans (a)**

156 ml

मूल 26k (7k, 8k, 11k)। 1/3 निकाला, फिर आधा गिरा ⇒ 1/3 बचा: 7k/3, 8k/3, 11k/3।

B मिलाने के बाद 7 : 12 : 11 ⇒ 1 इकाई = k/3, कुल 30 इकाई = 10k = 60 ⇒ k = 6 ⇒ मूल = 26 × 6 = **156 ml**।

Q33 **Ans (d)**

25 litres

Acid 15, पानी 10। 4 : 1 के लिए acid = 40 ⇒ और **25 litres** acid।

Q34 **Ans (b)**

30 liters

0.2x = 0.15(x + 10) ⇒ 0.05x = 1.5 ⇒ **x = 30 litres**।

Q35 **Ans (d)**

Rs170 per kg

(120 + 140 + 2x)/4 = 150 ⇒ 2x = 340 ⇒ x = **Rs 170**।

Q36 **Ans (a)**

9 : 16

बचा शहद = 12 × (1 - 3/12)² = 12 × 9/16 ⇒ अनुपात **9 : 16**।

Q37 **Ans (c)**

23.33%

Copper केवल पहले alloy में: 20% w_1 = 14%(w_1 + w_2) ⇒ w_1 : w_2 = 7 : 3।

Zinc: 0.7 × 7 + 3z = 0.56 × 10 ⇒ 3z = 0.7 ⇒ z ≈ **23.33%**।

Q38 **Ans (d)**

11.5%

A: 2 × 750 = 1500 ml में 9% = 135 ml; B: 3 × 500 = 1500 ml में 14% = 210 ml।

कुल = 345/3000 × 100 = **11.5%**।

CHAPTER 12

Time & Work, Pipes & Cisterns

Efficiency · LCM Method · Wages · Pipes

59	2	3	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Time & Work, Pipes & Cisterns

01 LCM method
कुल काम = दिनों का LCM; दक्षता = कुल ÷ दिन। भिन्नों से बचें।

02 Alternate days
2 दिन की जोड़ी का काम निकालें, पूरे चक्र घटाएँ, बचा काम अगले व्यक्ति से।

03 Wages
मज़दूरी = किए गए काम के अनुपात में (समय नहीं)।

04 Man-days
$M_1D_1H_1/W_1 = M_2D_2H_2/W_2$ — दक्षता बदले तो उसे भी गुणा करें।

05 Pipes
Outlet को ऋणात्मक दक्षता मानें; leak = (साथ) - (अकेला)।

Mock Set 01 Q1–Q25 · 30 Sep → 15 Oct

TOPIC · Time and Work (1/2)

Q1 A and B can complete a piece of work in 15 days and 20 days respectively. They work on alternate days, starting with A. In how many days will the work be completed?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 12 days (b) 15 days (c) 25 days (d) 17 days

Q2 Two workers A and B working together completed a job in 8 days. If A had worked with twice efficiency as he actually did, B had worked with 60% of efficiency as he actually did. The work would have been completed in 6 days. To complete the job alone, B would require how many days?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) $14\frac{3}{5}$ days (b) $16\frac{4}{5}$ days (c) $13\frac{2}{5}$ days (d) $18\frac{1}{5}$ days

Q3 P and Q can complete a work in 10 days and 30 days respectively. P starts the work and they work on alternate days. In how many days will the work be completed?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 7 days (b) $11\frac{2}{3}$ days (c) $14\frac{2}{3}$ days (d) 15 days

Q4 A team of 5 men and 5 women can complete a task in 12 days, while a team of 2 men and 8 women can complete the same task in 15 days. If a team of 10 women starts the work and works for 5 days, how many men must join them so that the remaining work is completed in exactly 5 more days?

[Assume that each woman works with equal efficiency as the other women and same for the men.]

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 8 (b) 9 (c) 10 (d) 12

Q5 P, Q and R contract to do a job for Rs. 52000. P alone can do it in 10 days, Q in 15 days and R in 30 days. P starts the work alone. After 2 days, Q joins him. After 3 more days, R also joins them. Then the three of them work together till the completion of the job. What should be Q's share of the earnings?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) Rs. 12300 (b) Rs. 13500 (c) Rs. 14500 (d) Rs. 15600

Q6 Sonia can do 1/3rd of a work in 5 days, Tuktuk can do 2/5th of the same work in 10 days and Pamela can do 2/3th of the work in 15 days. They all start working together. After 3 days, Sonia leaves. Tuktuk and Pamela work together for another 2 days before Tuktuk leaves. Pamela then finishes the remaining work alone. For how many total days did Pamela work on the project?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 9 (b) 10 (c) 11 (d) 12

Q7 A and B are the rivals. A is hired to do some work, A does the work while B destroys it. If A started at 2 pm and B started destroying at 3 pm, then the work finishes at 10 pm. Instead, if A started at 2 pm and B started destroying at 4 pm, then the work finishes at 6 pm. If B does not destroyed at all, find the time (in minutes) that A alone would take to complete the work.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 120 minutes (b) 224 minutes (c) 144 minutes (d) 184 minutes

Q8 40 men can complete a job in 30 days. 60 men start the work and continue for x days. Then 20 men leave, and the remaining men complete the work in 9 days. Find the value of x.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 12 (b) 13 (c) 14 (d) 15

Q9 A can complete a work in 10 days and B in 15 days. How long will it take them to finish the work if they work together?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 6 days (b) 7 days (c) 8 days (d) 9 days

Q10 An expert potter can craft a batch of pottery in 24 hours, while his apprentice can do the same in 40 hours. They receive a large high-profile order of a batch from the owner of a hotel and decide to work on it together. However, a strict quality inspector is sent by the hotel owner at the exact end of every 4-hour joint shift. The inspector rejects exactly 20% of the pottery completed during those specific 4-hour shifts due to minor imperfections. Any final remaining items needed after the last shift are crafted under direct guidance with 0% defects. How many total hours will it take them to complete the order successfully?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 18.2 hrs (b) 17.4 hrs (c) 16.8 hrs (d) 15.5 hrs

Q11 A team of linguists is translating the text on an ancient monolith. Linguist A and linguist B working together can translate it in 12 days, linguist B and linguist C working together can do it in 15 days, while A and C working together can do it in 20 days. All three of them work together on the monolith for 6 days. Then, A and B are relocated to another site. How many more days will be required by C to finish the remaining task alone?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 20 days (b) 22 days (c) 24 days (d) 25 days

Q12 A can complete a certain work alone in 10 days, while B can complete the same work in 5 days. They work together for 2 days, after which B leaves and C joins A. A and C then complete the remaining work in 3 days. Find the number of days C would take to complete 40% of the work if working alone.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 8 days (b) 10 days (c) 12 days (d) 16 days

Q13 Three friends, namely Krish, John and Leena, can do a particular work with equal efficiency. Krish works 'x' hours a day for 'x' days and then stops working. Then, John works 'y' hours a day for 'y' days. Then, Leena works 16 hours a day for 16 days and finally the work gets completed. Now, Leena alone can complete the work in 29 days by working 16 hours each day. If Krish, John and Leena together start doing the work with their respective per day working hours as mentioned, in how many days will the work be done (approximately)? [Consider both 'x' and 'y' are integers]

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 11 (b) 13 (c) 15 (d) 16

Q14 A alone completes a work in 12 days. With the help of an assistant, the work is completed in 8 days. If total wages are Rs600, find the assistant's share.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) Rs260 (b) Rs140 (c) Rs160 (d) Rs200

Q15 A commercial property needs painting. 60% of the total surface area consists of walls and 40% consists of ceilings. Painter E can paint all the walls in 6 hours but would take 12 hours to paint the ceilings. Painter F can paint all the ceilings alone in 4 hours, but the walls alone would take her 18 hours. They start working simultaneously, splitting the tasks optimally based on their respective speeds. The moment either painter finishes their initial assignment, they immediately join the other to help finish the remaining surface. How long will it take them to paint the entire property?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 5.5 hrs (b) 6 hrs (c) 6.4 hrs (d) 8 hrs

Q16 Two software engineers, Naina and Kapil, are debugging a block of code. Working independently, Naina can clear 10% of the code per hour and Kapil can clear 8% per hour. However, when working together in the same virtual environment, the communication overhead reduces each of their individual efficiencies by exactly 10%. If they work together for 2 hours after which Kapil leaves, how much more time will it take Naina so that a total of 40% of the block of code gets debugged?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 40 mins (b) 42.8 mins (c) 44.5 mins (d) 45.6 mins

Q17 P, Q, and R can complete a work in 12, 16, and 24 days respectively. They start together, but P leaves after 3 days and Q leaves 2 days before the completion of the work. In how many days is the work completed?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) $4\frac{1}{5}$ days (b) $5\frac{2}{5}$ days (c) $8\frac{2}{5}$ days (d) $9\frac{1}{5}$ days

Q18 The college IT cell is digitizing student records. Two computers, Comp A and Comp B, are assigned the task. Comp A processes the records in x hours, Comp B, being 25% faster, completes it in (x - 4) hours. Due to a malfunction, Comp A had to work alone for the first (x/2) hours, after which Comp B joined, and they completed the rest together in 4 hours. If the square of x equals the mean of 36, 64, 100, and 144, find the value of x. (upto 4 decimal places).

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 9.2736 (b) 8.3246 (c) 9.7663 (d) 9.3672

Q19 Three workers A, B, and C can finish a task in 12, 15, and 20 days respectively. They all start together, A leaves after 3 days, and B leaves 2 days later. How many more days will C take to finish the work alone?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 6 days (b) 7 days (c) 3 days 8 hours (d) 9 days

Q20 Preeti and Avantika are two sisters who have been asked by their mother to properly arrange their closet. The two sisters can together complete arranging it in 6 days. However, if Preeti works with 25% less efficiency and Avantika works with 20% more efficiency than their respective usual efficiencies, the work is seen to be completed in $\frac{200}{31}$ days. Find the time that will be taken by Preeti to arrange the entire closet alone.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 12 days (b) 11 days (c) 10 days (d) 9 days

Q21 A takes 1.5 times as many days to complete a task as B and C would take working together. Given that A and B can finish the same task together in 30 days, and C can complete it alone in 120 days, find the number of days B would need to complete the task working alone.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 40 days (b) 75 days (c) 55 days (d) 60 days

Q22 Two drones, Alpha and Beta, are tasked with mapping a large valley. Alpha can map the entire valley alone in 10 hrs of flight, while Beta alone can do that in 15 hours of flight. Alpha's battery lasts for exactly 2 hours of continuous flight, after which it requires 1 hour of recharge. Beta's battery lasts for 3 hours of continuous flight, after which it requires 2 hours of recharge. Both start the mapping at the same time in fully charged condition. How much time will it take to completely map the valley?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 6 hrs (b) 9 hrs (c) 7 hrs (d) 8 hrs

Q23 X is 50% more efficient than Y, Z takes twice as much time as X and Y working together to complete a job. X, Y and Z start working together but after 4 days, Z leaves. The remaining work is completed by X and Y. If X alone can complete the entire job in 20 days, determine the total time taken to complete the work in the given scenario.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 10 days (b) 12 days (c) 15 days (d) 18 days

Q24 A can complete a certain work in 20 days, while B can complete the same work in 30 days. Both start working together and continue for 6 days, after which A stops working. How many more days will B need to complete the remaining work on his own?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 12 days (b) 15 days (c) 18 days (d) 24 days

Q25 Akhil can complete a work in 24 days. Shyam can complete the same work in 12 days. If both of them work together, in how many days can they complete the same work?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 4 days (b) 6 days (c) 8 days (d) 10 days

ANSWER KEY · Mock Set 01

1 (d)	2 (b)	3 (c)	4 (a)	5 (d)
6 (d)	7 (c)	8 (c)	9 (a)	10 (a)
11 (c)	12 (c)	13 (b)	14 (d)	15 (a)
16 (d)	17 (c)	18 (a)	19 (c)	20 (c)
21 (d)	22 (d)	23 (a)	24 (b)	25 (c)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (d)

17 days

LCM(15, 20) = 60 इकाई। A = 4/दिन, B = 3/दिन ⇒ 2 दिन में 7।
8 चक्र (16 दिन) = 56; 17वें दिन A के 4 ⇒ 60 ⇒ **17 दिन**।

Q2 Ans (b)

$16\frac{4}{5}$ days

8(a + b) = 1 और 6(2a + 0.6b) = 1 ⇒ 8a + 8b = 12a + 3.6b ⇒ 4.4b = 4a ⇒ a = 1.1b।
8 × 2.1b = 1 ⇒ b = 1/16.8 ⇒ B अकेला = 16.8 = **16⅘ दिन**।

Q3 Ans (c)

$14\frac{2}{3}$ days

LCM 30: P = 3, Q = 1 ⇒ 2 दिन में 4। 7 चक्र (14 दिन) = 28; बचे 2 ⇒ P को 2/3 दिन।
कुल = **14⅔ दिन**।

Q4 Ans (a)

8

12(5m + 5w) = 15(2m + 8w) ⇒ 30m = 60w ⇒ m = 2w। कुल काम = 12 × 15w = 180w।
10 महिलाएँ 5 दिन = 50w; बचा 130w, 5 दिन में ⇒ 26w/दिन ⇒ 10w + 2w·x = 26w ⇒ **x = 8 पुरुष**।

Q5 Ans (d)

Rs. 15600

LCM 30: P = 3, Q = 2, R = 1। P अकेला 2 दिन = 6; P + Q 3 दिन = 15 ⇒ 21।
बाकी 9 तीनों (6/दिन) ⇒ 1.5 दिन। Q का काम = 2 × 4.5 = 9 इकाई।
Q का हिस्सा = 52000 × 9/30 = **Rs 15,600**।

Q6 **Ans (d)** DEBATABLE

12

दरें: Sonia = 1/15, Tuktuk = 1/25, Pamela = 1/22.5 (LCM 225: 15, 9, 10)।

3 दिन तीनों = 102; 2 दिन T + P = 38 ⇒ 140; बचे 85 ⇒ Pamela 8.5 दिन ⇒ Pamela कुल 13.5 दिन।

⚠ **Key Note:** Debatable – दिए गए आँकड़ों से Pamela कुल 13.5 दिन काम करती है, जो किसी विकल्प में नहीं है। SSC key **(d) 12** है।

Q7 **Ans (c)**

144 minutes

प्रति घंटा A = a, B = b। स्थिति 1: 8a - 7b = 1; स्थिति 2: 4a - 2b = 1।

दूसरी से b = (4a - 1)/2 ⇒ 8a - 7(4a - 1)/2 = 1 ⇒ 12a = 5 ⇒ a = 5/12।

A अकेला = 12/5 घंटे = **144 मिनट**।

Q8 **Ans (c)**

14

कुल काम = 40 × 30 = 1200 man-days। 60x + 40 × 9 = 1200 ⇒ 60x = 840 ⇒ **x = 14**।

Q9 **Ans (a)**

6 days

1/10 + 1/15 = 1/6 ⇒ **6 दिन**।

Q10 **Ans (a)**

18.2 hrs

LCM 120: expert = 5/घंटा, apprentice = 3/घंटा ⇒ 8/घंटा। 4 घंटे की shift में 32 बने, 80% = 25.6 स्वीकार।

4 shifts (16 घंटे) = 102.4; बचे 17.6 ⇒ 17.6/8 = 2.2 घंटे ⇒ कुल **18.2 घंटे**।

Q11 **Ans (c)**

24 days

LCM 60: A + B = 5, B + C = 4, A + C = 3 ⇒ A + B + C = 6 ⇒ C = 1।

6 दिन में 36; बचे 24 ⇒ C अकेला **24 दिन**।

Q12 **Ans (c)**

12 days

2 दिन A + B = 2(1/10 + 1/5) = 0.6। बचा 0.4: A का 3 दिन में 0.3 ⇒ C ने 3 दिन में 0.1।

C अकेला 30 दिन ⇒ 40% काम = **12 दिन**।

Q13 **Ans (b)**

13

कुल काम = 29 × 16 = 464 man-hours। $x^2 + y^2 + 16^2 = 464 \Rightarrow x^2 + y^2 = 208 \Rightarrow (x, y) = (8, 12)$।

तीनों साथ प्रतिदिन = 8 + 12 + 16 = 36 घंटे ⇒ 464/36 ≈ **13 दिन**।

Q14 **Ans (d)**

Rs200

Assistant की दर = 1/8 - 1/12 = 1/24 ⇒ A : Assistant = 2 : 1।

Assistant = 600 × 1/3 = **Rs 200**।

Q15 **Ans (a)**

5.5 hrs

E दीवारों पर (1/6 प्रति घंटा), F छत पर (1/4 प्रति घंटा)। F छत 4 घंटे में पूरी करती है, तब तक E ने 4/6 दीवारें रंगीं।

बची 1/3 दीवारें: E + F = 1/6 + 1/18 = 2/9 प्रति घंटा ⇒ 1.5 घंटे ⇒ कुल **5.5 घंटे**।

Q16 **Ans (d)**

45.6 mins

साथ में दक्षता 90%: Naina 9%, Kapil 7.2% ⇒ 2 घंटे में 32.4%।

बचा 7.6%, Naina 10%/घंटा ⇒ 0.76 घंटा = **45.6 मिनट**।

Q17 **Ans (c)**

$8\frac{2}{5}$ days

LCM 48: P = 4, Q = 3, R = 2। कुल T दिन: 4 × 3 + 3(T - 2) + 2T = 48 ⇒ 5T = 42।

T = 8.4 = **8⅖ दिन**।

Q18 **Ans (a)**

9.2736

$x^2 = (36 + 64 + 100 + 144)/4 = 86 \Rightarrow x = \sqrt{86} \approx$ **9.2736**।

Q19 **Ans (c)**

3 days 8 hours

LCM 60: A = 5, B = 4, C = 3। 3 दिन तीनों = 36; 2 दिन B + C = 14 ⇒ 50।

बचे 10 ⇒ C को 10/3 दिन = **3 दिन 8 घंटे**।

Q20 **Ans (c)**

10 days

6(p + a) = 1 ⇒ p + a = 1/6; (0.75p + 1.2a) × 200/31 = 1 ⇒ 0.75p + 1.2a = 0.155।

0.75p + 1.2(1/6 - p) = 0.155 ⇒ 0.45p = 0.045 ⇒ p = 1/10 ⇒ Preeti अकेली **10 दिन**।

Q21 **Ans (d)**

60 days

A की दर = (B + C)/1.5। A + B = 1/30, C = 1/120 ⇒ (2/3)(B + 1/120) + B = 1/30।

(5/3)B = 1/30 - 1/180 = 5/180 ⇒ B = 1/60 ⇒ **60 दिन**।

Q22 **Ans (d)**

8 hrs

Alpha = 0.1/घंटा (2 घंटे उड़ान, 1 घंटा चार्ज); Beta = 1/15/घंटा (3 घंटे उड़ान, 2 घंटे चार्ज)।

घंटेवार: 0.1667, 0.3333, 0.4 (केवल B), 0.5, 0.6 (केवल A), 0.6667 (केवल B), 0.8333, 1.0 ⇒ **8 घंटे**।

Q23 **Ans (a)**

10 days

X = 1/20, Y = 1/30 ⇒ X + Y = 1/12 ⇒ Z = 1/24।

4 दिन तीनों = 4 × (2 + 1)/24 = 0.5; बचा 0.5, X + Y को 6 दिन ⇒ कुल **10 दिन**।

Q24 **Ans (b)**

15 days

6 दिन साथ = 6 × (1/20 + 1/30) = 0.5 ⇒ बचा 0.5, B को 0.5 × 30 = **15 दिन**।

Q25 **Ans (c)**

8 days

1/24 + 1/12 = 3/24 = 1/8 ⇒ **8 दिन**।

Mock Set 02 Q26–Q46 · 16 Oct → 28 Oct

TOPIC · Time and Work (2/2)

Q26 A team of 15 volunteers can plant a plot of saplings in 8 hours. On the day of the project, 5 volunteers do not show up. Assuming all volunteers work at the same pace, how long will it take the remaining team to complete the planting?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 12 hrs (b) 11.5 hrs (c) 10 hrs (d) 9.6 hrs

Q27 Mechanics X, Y and Z can assemble an engine alone in 15 days, 20 days and 30 days, respectively. A floor supervisor D does no physical assembling. However, due to her expertise, X's efficiency increases by 20%, that of Y increases by 25 % and that of Z increases by 50%, whenever D supervises them individually. D can supervise only one person at a time, but all the three mechanics work simultaneously from start to end. Find out who should D supervise so that the assembling gets completed in the absolute minimum number of days and find the time required in that case, respectively.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) D should supervise X; 5 days
(b) D should supervise Y; 6 days
(c) D should supervise Z; 6 days
(d) D can supervise any of the three; 4 days

Q28 A job is completed by 3 workers in 12 days. How many days will it take for 9 workers to complete the same job?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 6 days (b) 3 days (c) 4 days (d) 5 days

Q29 A typist can type 30 pages in 6 hours. How many pages can 4 typists type in 3 hours, assuming uniform speed?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 70 (b) 90 (c) 80 (d) 60

Q30 A and B together can complete a work in 10 days, B and C together in 15 days and C and A together in 20 days. D is three times as efficient as C. All four work together for 3 days. Then A and C work together for 5 days. Finally B and D complete the remaining work. If Rs30,000 is divided according to actual work done, what is B's share?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) Rs12,000 (b) Rs12,600 (c) Rs13,200 (d) Rs13,800

Q31 Machine X can purify a batch of chemicals in 12 hours. Machine Y can purify the same batch in 16 hours. A lab technician turns on Machine X and leaves the room. She returns after 5 hours and turns on Machine Y also to assist. From that point, how many hours will it take to complete purifying the rest of the batch?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 4 hrs (b) 6 hrs (c) 8 hrs (d) 9 hrs

Q32 Forty workers working 6 hours a day complete one-fifth of a work in the first 7 days. Work then stops completely for 3 days. When work resumes, only 28 of the original workers return. Every returning or newly added worker is 25% more efficient than during the first stage and works 8 hours a day. How many new workers must be added so that the work is completed by the original 22-day deadline?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 24 workers (b) 26 workers (c) 28 workers (d) 30 workers

Q33 A, B, C and D can complete a work individually in 16 days, 24 days, 48 days and 32 days, respectively. All four work together for 4 days. Thereafter A works at 75% of his original efficiency, B at 150%, C at 250% and D at 80%. How much total time, from the start, is required to complete the work?

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) $5\frac{173}{179}$ days (b) 6 days (c) $6\frac{1}{179}$ days (d) $6\frac{2}{179}$ days

Q34 A group of workers working individually can complete the project in 60 days. On the first day, only one worker starts the work. Each subsequent day, one more worker joins the team. That is 1 worker on day 1, 2 workers on day 2, 3 workers on day 3, and so on. Assuming every worker contributes equally and continuously from the day they join, estimate in how many days will the project be completed?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 10.5 (b) 10 (c) 9.5 (d) 9

Q35 A, B, C and D can complete a work individually in 20 days, 25 days, 40 days and 50 days, respectively. All four work together for 2 days. Then A, B and C continue for 3 more days. Next A and B work for 4 days. Finally C returns at 150% of his original efficiency and D returns at twice his original efficiency; C and D together finish the remaining work. If Rs31,000 is divided according to actual work done, what is C's share?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) Rs3,950 (b) Rs4,100 (c) Rs4,250 (d) Rs4,400

Q36 A and B can complete the work in 9 days and 36 days, respectively. A starts the work and they work alternately, one person working each day. In how many days will the entire work be completed?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) $12\frac{1}{2}$ days (b) $9\frac{1}{4}$ days (c) $14\frac{1}{4}$ days (d) $18\frac{1}{2}$ days

Q37 Two workers, Moti and Nandu, are building a brick wall that requires exactly 120 bricks. Moti lays 15 bricks per hour, but after every hour he works, he takes a 1-hour break. Nandu works continuously and lays 10 bricks per hour. Both start working together at the same time. However, a site hazard knocks down 5 bricks at the exact end of every hour. How much time will it take to complete laying 120 bricks for the very first time?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 7 hrs 52 mins (b) 8 hrs 32 mins (c) 8 hrs 48 mins (d) 9 hrs 28 mins

Q38 A team of 12 workers can complete a project in 15 days by working 8 hrs a day. After working for 5 days, 4 workers fall sick and leave the project. The management requests the remaining workers to complete the project in the originally scheduled 15 days due to urgency. How many hours a day must the remaining workers work to complete the work within the specified time?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 12 hrs (b) 11 hrs (c) 10 hrs (d) 9 hrs

Q39 A and B can complete a work in 20 days and 60 days respectively. A starts and they work alternately. Find the total number of days required.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 15 days (b) 10 days (c) 20 days (d) 30 days

Q40 Maya does 60% of a work in 18 days. She then calls Puja and both together finish the rest of the work in 6 days. How many days would Puja alone take to complete the work?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 20 days (b) 24 days (c) 25 days (d) 30 days

Q41 A can finish 30% of a task in 9 days, B can complete 2/5 of the same task in 10 days, C can do 1/6 of it in 5 days, and D can complete 50% of the task in 12 days. Who among them is the fastest to complete the entire work individually?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) A (b) B (c) C (d) D

Q42 A textile factory has two machines, M1 and M2, that process fabric rolls. M1 can complete a batch in 18 days, and M2 in 12 days. Both machines are scheduled to work alternate days, starting with M1 on Day 1. Due to quality checks, only 80% of M1's work and 90% of M2's work is accepted. Assuming the cycle continues until the entire batch (LCM of their working days) is accepted, in how many total days will the work be completed?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 17 days (b) 18 days (c) 19 days (d) 20 days

Q43 Machine A and Machine B working together can print a batch of books in 12 hours. If Machine A works at half of its normal speed and Machine B operates at three times its normal speed, both together complete the same work in 8 hours. How long would it take Machine A, working at its normal speed alone, to print the entire batch?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 20 hrs (b) 18 hrs (c) 21 hrs (d) 24 hrs

Q44 Vrinda takes half of the time taken by Raunaq to finish a particular task. Raunaq takes thrice the time taken by Vrinda and Parul working together to complete the task. If Raunaq takes 4.5 days more than that taken by the three of them working together to complete the task, how many days are required by Parul to complete the task alone?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 7 days (b) 6 days (c) 5.5 days (d) 4.5 days

Q45 Ritesh can complete a piece of work in 20 days and Genelia can complete it in 30 days. They work on alternate days starting with Ritesh on the first day. However, on every third day of the overall working schedule, it is noticed that whoever is working on that day feels fatigued and works at exactly half of their normal efficiency. How many days will it take them to complete the work?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 25 days (b) 27.5 days (c) 28.5 days (d) 30 days

Q46 Restorer M can clean an ancient fresco in 16 days, while restorer N can do it in 24 days. To avoid crowding the scaffolding, they decide to alternate working days, starting with restorer M on Day 1. How much time do they need to clean exactly 75% of the fresco?

$14\frac{1}{3}$ दिन $14\frac{1}{2}$ दिन $15\frac{1}{3}$ दिन $15\frac{3}{4}$ दिन

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $14\frac{1}{3}$ दिन (b) $14\frac{1}{2}$ दिन (c) $15\frac{1}{3}$ दिन (d) $15\frac{3}{4}$ दिन

ANSWER KEY · Mock Set 02

26 (a)	27 (c)	28 (c)	29 (d)	30 (b)
31 (a)	32 (c)	33 (d)	34 (a)	35 (c)
36 (c)	37 (c)	38 (a)	39 (d)	40 (d)
41 (d)	42 (a)	43 (a)	44 (b)	45 (c)
46 (a)				

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (a)

12 hrs

कुल = 15 × 8 = 120 man-hours ⇒ 10 लोग = **12 घंटे**।

Q27 Ans (c)

D should supervise Z; 6 days

LCM 60: X = 4, Y = 3, Z = 2 (कुल 9)। Supervise करने पर: X → 4.8 (कुल 9.8), Y → 3.75 (9.75), Z → 3 (कुल 10)।

अधिकतम 10 ⇒ **Z को supervise; 60/10 = 6 दिन**।

Q28 Ans (c)

4 days

3 × 12 = 36 worker-days ⇒ 9 workers = **4 दिन**।

Q29 **Ans (d)**

60

एक typist = 5 पेज/घंटा ⇒ 4 × 3 × 5 = **60 पेज**।

Q30 **Ans (b)**

Rs12,600

LCM 60: A + B = 6, B + C = 4, C + A = 3 ⇒ A + B + C = 6.5 ⇒ A = 2.5, B = 3.5, C = 0.5, D = 1.5।

3 दिन चारों = 24; 5 दिन A + C = 15 ⇒ 39; बचे 21, B + D (5/दिन) ⇒ 4.2 दिन।

B का काम = 3.5 × 7.2 = 25.2 ⇒ हिस्सा = 30000 × 25.2/60 = **Rs 12,600**।

Q31 **Ans (a)**

4 hrs

X ने 5 घंटे में 5/12 किया। बचा 7/12; X + Y = 1/12 + 1/16 = 7/48 ⇒ **4 घंटे**।

Q32 **Ans (c)**

28 workers

40 × 6 × 7 = 1680 man-hours = 1/5 ⇒ कुल 8400; बचा 6720।

बचे दिन = 22 - 7 - 3 = 12। नया worker = 1.25 × 8 = 10 इकाई/दिन ⇒ ज़रूरी workers = 6720/(12 × 10) = 56।

नए जोड़ने होंगे = 56 - 28 = **28**।

Q33 **Ans (d)**

$6\frac{2}{179}$ days

LCM 96: A = 6, B = 4, C = 2, D = 3 (कुल 15) ⇒ 4 दिन = 60; बचे 36।

नई दरें: 4.5 + 6 + 5 + 2.4 = 17.9 ⇒ 36/17.9 = 2 2/179 दिन ⇒ कुल **6 2/179 दिन**।

Q34 **Ans (a)**

10.5

एक worker प्रतिदिन 1/60। n दिन में = (1 + 2 + … + n)/60 = n(n + 1)/120।

10 दिन = 110/120; 11वें दिन 11 workers को बचा 10/120 ⇒ 10/11 दिन ⇒ लगभग **10.5 दिन**।

Q35 **Ans (c)**

Rs4,250

LCM 200: A = 10, B = 8, C = 5, D = 4। 2 दिन चारों = 54; 3 दिन A, B, C = 69; 4 दिन A, B = 72 ⇒ 195।

बचे 5: C = 7.5, D = 8 ⇒ 5/15.5 = 10/31 दिन। C का काम = 5 × 5 + 7.5 × 10/31 = 850/31।

C का हिस्सा = 31000 × (850/31)/200 = **Rs 4,250**।

Q36 **Ans (c)**

$14\frac{1}{4}$ days

LCM 36: A = 4, B = 1 ⇒ 2 दिन में 5। 7 चक्र (14 दिन) = 35; बचा 1 ⇒ A को 1/4 दिन।

कुल = **14¼ दिन**।

Q37 **Ans (c)**

8 hrs 48 mins

घंटेवार ईंटें (हर घंटे के अंत में 5 गिरती हैं): 20, 25, 45, 50, 70, 75, 95, 100।

9वें घंटे में दोनों (25/घंटा): 20 और चाहिए ⇒ 48 मिनट ⇒ **8 घंटे 48 मिनट**।

Q38 **Ans (a)**

12 hrs

कुल = 12 × 15 × 8 = 1440 man-hours; 5 दिन में 480। बचे 960, 8 workers × 10 दिन ⇒ **12 घंटे/दिन**।

Q39 **Ans (d)**

30 days

LCM 60: A = 3, B = 1 ⇒ 2 दिन में 4 ⇒ 15 चक्र = **30 दिन**।

Q40 **Ans (d)**

30 days

Maya अकेली 30 दिन। बचा 40% 6 दिन में ⇒ साथ में 1/15 ⇒ Puja = 1/15 - 1/30 = 1/30 ⇒ **30 दिन**।

Q41 **Ans (d)**

D

पूरा काम: A = 30 दिन, B = 25, C = 30, D = 24 ⇒ सबसे तेज़ **D**।

Q42 **Ans (a)**

17 days

स्वीकार्य दर: M1 = 0.8/18, M2 = 0.9/12 ⇒ LCM 360: M1 = 16, M2 = 27 ⇒ 2 दिन में 43।

8 चक्र (16 दिन) = 344; 17वें दिन M1 के 16 ⇒ 360 ⇒ **17 दिन**।

Q43 **Ans (a)**

20 hrs

12(a + b) = 1 और 8(a/2 + 3b) = 1 ⇒ 12a + 12b = 4a + 24b ⇒ b = 2a/3।

12 × 5a/3 = 1 ⇒ a = 1/20 ⇒ **20 घंटे**।

Q44 **Ans (b)**

6 days

Raunaq की दर r ⇒ Vrinda = 2r; V + P = 3r ⇒ P = r। तीनों = 4r।

1/r - 1/(4r) = 4.5 ⇒ 1/r = 6 ⇒ Parul = **6 दिन**।

Q45 **Ans (c)**

28.5 days

LCM 60: R = 3, G = 2। हर तीसरे दिन आधी दक्षता ⇒ 6 दिन का चक्र: 3 + 2 + 1.5 + 2 + 3 + 1 = 12.5।

4 चक्र (24 दिन) = 50; दिन 25–28: 3 + 2 + 1.5 + 2 = 8.5 ⇒ 58.5; बचे 1.5 ⇒ R को आधा दिन ⇒ **28.5 दिन**।

Q46 **Ans (a)**

$14\frac{1}{3}$ दिन

LCM 48: M = 3, N = 2 ⇒ 2 दिन में 5। 75% = 36 इकाई: 7 चक्र (14 दिन) = 35; बचा 1 ⇒ M को 1/3 दिन।

कुल = **14⅓ दिन**।

Mock Set 03 Q47–Q59 · 30 Sep → 27 Oct

TOPIC · Pipe and Cistern

Q47 Working alone, Pipe P can fill 15% of a tank in 4 hours, and Pipe Q can fill 18% of the same tank in 4 hours. If both pipes are opened together, what percentage of the tank will be filled in 4 hours?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 25% (b) 33% (c) 42% (d) 56%

Q48 A cistern has three taps M, N and P, through which water can be taken out from it. Tap M can fill 6 buckets in 30 minutes, tap N can fill 8 buckets in 1 hour 4 minutes and tap P can fill 2 buckets in 20 minutes. When the cistern is filled upto 4/5th of its capacity, all the three taps are opened together, as a result of which the cistern gets emptied in 2 hours 40 minutes. What is the capacity of the cistern if each bucket is identical and can hold 8 liters of water (assuming there is no wastage of water)?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 720 Lts (b) 680 Lts (c) 650 Lts (d) 544 Lts

Q49 A tank is connected to 15 pipes. Some of these are inlet pipes, while the remaining are outlet pipes. An inlet pipe alone can fill the tank in 8 hrs. On the other hand, an outlet pipe alone can empty the tank in 6 hrs. The tank is emptied in 6 hrs if all the pipes are opened simultaneously when the tank is exactly full. Find out how many of the pipes are outlet pipes.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 5 (b) 6 (c) 7 (d) 8

Q50 A cistern is initially empty. Inlet pipes A and B fill it at constant rates of $\frac{1}{12}$ and $\frac{1}{8}$ of the cistern per hour, respectively, while outlet pipe C empties it at a constant rate of $\frac{1}{8}$ per hour. Sumeet opens pipes A and B at time zero. Under his original plan, pipe C is programmed to start instantly when the cistern reaches 50%, and Sumeet returns exactly at the moment the cistern becomes completely full. However, due to a malfunction, pipe C starts instantly when the cistern is $\frac{1}{3}$ full instead. All active pipes run continuously and simultaneously, and the cistern level always stays between 0% and 100%. When Sumeet returns at the originally planned time and stops all pipes, what percentage of the cistern is filled?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 75% (b) 80% (c) 85% (d) 90%

Q51 Pipe X can fill a tank in 20 hours and Pipe Y can empty the same tank in 30 hours. If both pipes are opened together in an empty tank, how much time will it take to fill the tank completely?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 30 hours (b) 50 hours (c) 40 hours (d) 60 hours

Q52 A server's storage drive is at 0% capacity. A malicious script begins flooding it with junk data at a rate that would completely fill the drive in 6 hours. 3 hours since the attack starts, the IT team activates Scrubber A, which by itself can delete a full drive of data in 15 hours. 2 hours after the activation of A, they also turn on Scrubber B, which can delete a full drive in 5 hours. If the script runs continuously, at what exact time will the drive return to being 100% empty, if the attack started at 12:00 PM (noon)?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 7:00 PM (b) 10:30 PM
(c) 12:00 AM (midnight) (d) 12:30 AM

Q53 Pipe X can fill a tank in 16 minutes and pipe Y can fill it in in 24 minutes. A drainpipe Z can empty it in x minutes. All the three pipes are opened simultaneously at a particular point of time and after 8 minutes, pipe Z is closed. The tank becomes exactly full 4 minutes later. Find the time taken by pipe Z to empty the entirely filled tank alone.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 25 minutes (b) 28 minutes (c) 30 minutes (d) 32 minutes

Q54 Pipe P can fill a pool in 6 hours, but due to a drainage pipe Q, it takes 9 hours to fill the pool. In how many hours can the drainage pipe Q alone empty the full pool?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 12 hours (b) 18 hours (c) 16 hours (d) 24 hours

Q55 A tank, which can normally be filled in 15 hours, takes 5 additional hours to fill due to a leak at the bottom. If the tank is completely full, how long will the leak alone take to empty it?

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 30 hours (b) 40 hours (c) 50 hours (d) 60 hours

Q56 A tank can be filled in 15 hours under normal conditions. However, due to a leak at the bottom, it takes 20 hours to fill completely. If the tank is already full, how long will the leak alone take to empty it?

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 60 hours (b) 40 hours (c) 50 hours (d) 70 hours

Q57 Two pipes, A and B, can fill a tank in 1 and 3 hours, respectively. If both pipes are opened together, how long will it take to fill the tank?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 50 minutes (b) 40 minutes (c) 35 minutes (d) 45 minutes

Q58 A water tank has three pipes attached to it. Pipe 1 and Pipe 2 are inlet pipes that fill the tank in 5/2 hours and 10/3 hours respectively. Pipe 3 is an outlet pipe that empties the full tank in 5 hours. If all three pipes are opened together, how long will it take to fill the empty tank?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) $1\frac{1}{2}$ hours (b) $2\frac{1}{2}$ hours (c) 2 hours (d) 3 hours

Q59 An inlet pipe is attached to an empty tank which can fill the tank in exactly 1 hour at the rate of 2 cm/sec. The inlet pipe has a cross section of square shape with side 4 cm. An outlet pipe with a circular cross section is also attached to the tank and it can empty the tank at the rate of 7 cm/sec. When both these pipes function simultaneously, the tank gets exactly filled after 3 hrs 12 mins. Find the radius of the cross-section of the outlet pipe.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 3 cm (b) 2.5 cm (c) 1.5 cm (d) 1 cm

ANSWER KEY · Mock Set 03

47 (b)	48 (b)	49 (c)	50 (d)	51 (d)
52 (c)	53 (d)	54 (b)	55 (d)	56 (a)
57 (d)	58 (c)	59 (d)		

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q47 Ans (b)

33%

4 घंटे में P = 15%, Q = 18% ⇒ साथ में **33%**।

Q48 Ans (b)

680 Lts

प्रति घंटा: M = 12, N = 8 × 60/64 = 7.5, P = 6 buckets ⇒ 25.5 buckets/घंटा।

8/3 घंटे में = 68 buckets = 4/5 क्षमता ⇒ क्षमता = 85 × 8 = **680 L**।

Q49 Ans (c)

7

n inlet, (15 - n) outlet: n/8 - (15 - n)/6 = -1/6 ⇒ 3n - 4(15 - n) = -4 ⇒ n = 8।

Outlet pipes = 15 - 8 = **7**।

Q50 **Ans (d)**

90%

A + B = 1/12 + 1/8 = 5/24 प्रति घंटा; C चालू होने पर शुद्ध = 5/24 - 3/24 = 1/12।

मूल योजना: 50% पर 2.4 घंटे, फिर 0.5 ÷ 1/12 = 6 घंटे ⇒ वापसी 8.4 घंटे पर।

ख़राबी में: 1/3 पर 1.6 घंटे, फिर 6.8 घंटे × 1/12 = 0.5667 ⇒ कुल = 0.9 = **90%**।

Q51 **Ans (d)**

60 hours

1/20 - 1/30 = 1/60 ⇒ **60 घंटे**।

Q52 **Ans (c)**

12:00 AM (midnight)

भराव 1/6 प्रति घंटा। 3 घंटे में 0.5; फिर A के साथ शुद्ध 1/6 - 1/15 = 1/10 ⇒ 2 घंटे में 0.7 (5 PM)।

B के बाद शुद्ध = 1/6 - 1/15 - 1/5 = -1/10 ⇒ 0.7 ÷ 0.1 = 7 घंटे ⇒ **12:00 AM (midnight)**।

Q53 **Ans (d)**

32 minutes

X + Y ने 12 मिनट में 12 × (1/16 + 1/24) = 1.25 भरा; Z ने 8 मिनट में 0.25 निकाला।

Z अकेला = 8/0.25 = **32 मिनट**।

Q54 **Ans (b)**

18 hours

Q की दर = 1/6 - 1/9 = 1/18 ⇒ **18 घंटे**।

Q55 **Ans (d)**

60 hours

Leak = 1/15 - 1/20 = 1/60 ⇒ **60 घंटे**।

Q56 **Ans (a)**

60 hours

Leak = 1/15 - 1/20 = 1/60 ⇒ **60 घंटे**।

Q57 **Ans (d)**

45 minutes

1 + 1/3 = 4/3 प्रति घंटा ⇒ 3/4 घंटा = **45 मिनट**।

Q58 **Ans (c)**

2 hours

2/5 + 3/10 - 1/5 = 1/2 प्रति घंटा ⇒ **2 घंटे**।

Q59 **Ans (d)**

1 cm

Inlet flow = $4^2 \times 2 = 32$ cm³/s ⇒ टंकी = 32 × 3600 = 1,15,200 cm³।

3 घंटे 12 मिनट = 11,520 s में भरी ⇒ शुद्ध = 10 cm³/s ⇒ outlet = 22 cm³/s = $\pi r^2 \times 7$ ⇒ $r^2 = 1$ ⇒ **r = 1 cm**।

CHAPTER 13

Time, Speed, Distance & Trains

Average Speed · Relative Speed · Boats · Trains

31	2	1	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Time, Speed, Distance & Trains

01 औसत गति
बराबर दूरी: $2xy/(x + y)$; तीन बराबर दूरियाँ: harmonic mean।

02 Late / Early
$D = S_1S_2 \times (\text{समय अंतर})/(S_2 - S_1)$।

03 मिलने के बाद का समय
मिलने तक समय = $\sqrt{(t_1t_2)}$; $S_1/S_2 = \sqrt{(t_2/t_1)}$।

04 गति x% घटे
समय $1/(1 - x)$ गुना होता है; अतिरिक्त समय से मूल समय निकालें।

05 Trains
ट्रेन + platform की लंबाई कुल दूरी; विपरीत दिशा में गतियाँ जुड़ती हैं। km/h × 5/18 = m/s।

Mock Set 01 Q1–Q31 · 1 Oct → 28 Oct

TOPIC · Time Speed and Distance

Q1 Rita travels a certain fixed distance at her usual speed. If she reduces her speed by 10 km/h, she takes 40 hours more than the original time to complete the journey. On the other hand, if she increases her speed by 15 km/h, she takes 10 hours less than the original time. Find the distance travelled by Rita.

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 150 km (b) 250 km (c) 300 km (d) 380 km

Q2 Ram covered the same distance at the speed of 40 km/hr, 45 km/hr and 60 km/hr. What was the average speed of Ram during the whole journey? (Correct to two decimal places.)

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 34.87 km/h (b) 42.80 km/h (c) 38.96 km/h (d) 46.96 km/h

Q3 A person travels a certain distance at a speed of 5 km/h and completes the journey in 6 hours. If the speed is increased to 10 km/h, how much time will be taken to cover the same distance?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 2 hours (b) 5 hours (c) 3 hours (d) 6 hours

Q4 Ram and Shyam start moving simultaneously from points A and B toward each other at 9:00 a.m. After they cross paths, Ram takes 80 minutes to reach point B and Shyam takes 45 minutes to reach point A. At what specific time did they meet?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 9 : 30 am (b) 10 : 00 am (c) 10 : 30 am (d) 11 : 00 am

Q5 A person covers half of his journey at 40 km/h and the remaining half at 60 km/h. Determine his average speed for the entire journey.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 54 km/h (b) 65 km/h (c) 48 km/h (d) 87 km/h

Q6 A car takes 4 hours to reach Ahmedabad from Surat at 60 km/h.
How long will it take to return at 80 km/h?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 2 hours (b) 5 hours (c) 3 hours (d) 4 hours

Q7 A person travels from Delhi to Jaipur (240 km) using two modes of transport: bus and train. The bus has an average speed of 30 km/h and the train has an average speed of 55 km/h. The total journey takes 6 hours. Find the distance covered by train.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 125 km (b) 132 km (c) 138 km (d) 145 km

Q8 A man travels 180 km using two modes: bus at 40 km/h and taxi at 60 km/h. If the total journey takes 4 hours, find the distance covered by bus.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 110 km (b) 115 km (c) 120 km (d) 125 km

Q9 An express train covers a total distance of 900 km over a 12-hour journey. It travels the first $\frac{1}{4}$ of the distance at a constant speed of v km/h, the next 150 km at a speed of 75 km/h, and the remaining distance at a speed that is 25% faster than its initial speed v. Find the constant speed v.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 60 km/h (b) 64.5 km/h (c) 65.5 km/h (d) 70.0 km/h

Q10 Rohit completes four journeys, each covering the same distance. His speed during the first journey is 400 km/h, and for each subsequent journey, his speed becomes half of the previous one. Find the approximate average speed over all four journeys.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 95.70 km/h (b) 110.75 km/h (c) 98.90 km/h (d) 106.67 km/h

Q11 One third of a certain journey is covered at a speed of 24 km/hr, one fourth at a speed of 36 km/hr and the remaining at a speed of 60 km/hr. What will be the average speed for the entire journey?

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 22 km/h (b) 30 km/h (c) 28 km/h (d) 36 km/h

Q12 Two persons, A and B, begin traveling simultaneously from points X and Y toward each other. The speed of A is 20% greater than the speed of B. After they meet at a point on the way, A takes 2.5 hours to reach Y and B takes a hours to reach X. Find the value of a.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 2.8 hours (b) 3 hours (c) 3.6 hours (d) 4 hours

Q13 A car's speed is decreased by 20%, and it reaches its destination 15 minutes later than the scheduled time. What is the usual time (in minutes) taken by the car to cover the journey.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 40 minutes (b) 60 minutes (c) 80 minutes (d) 100 minutes

Q14 A man traveling at 24 km/h reaches his destination 5 minutes late. If he increases his speed to 30 km/h, he arrives 4 minutes before the scheduled time. Find the time taken (in minutes) by him to cover the same distance at a speed of 27 km/h.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 20 minutes (b) 55 minutes (c) 35 minutes (d) 40 minutes

Q15 An airplane flies along the four sides of a square field at speeds of 200 km/h, 400 km/h, 600 km/h, and 800 km/h respectively. What is the average speed of the plane around the entire perimeter?

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 384 km/h (b) 400 km/h (c) 450 km/h (d) 500 km/h

Q16 Ramesh travels from his home to college at 40 km/h and arrives 25 minutes late. On the following day, he increases his speed to 50 km/h but is still 10 minutes late. Find the distance between his home and college.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 30 km (b) 40 km (c) 50 km (d) 60 km

Q17 A bus runs at 40 km/h and reaches its destination 18 minutes late. When its speed is increased to 50 km/h, it reaches 6 minutes early. Find the distance covered by the bus.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 60 km (b) 80 km (c) 100 km (d) 120 km

Q18 A plane travels from point A to point B in 21 hours. If the plane's speed decreases by 220 km/h, the travel time for the same distance increases to 26 hours. What is the total distance between A and B in kilometers?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 23624 km (b) 20540 km (c) 24024 km (d) 20800 km

Q19 A crane operator moves along two base edges of a cubical container (volume = 1000 m³), then ascends vertically to the top. If speeds along the base are in the ratio 2:1 and it takes 6 seconds to move along the slower side, and the crane ascends vertically at 0.5 m/s, what is the total distance and time?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 30 m; 28 s (b) 30 m; 29 s (c) 32 m; 30 s (d) 34 m; 31 s

Q20 A person travels to a city at 12 km/hr and returns at 9 km/hr. If the total time taken is 7 hours, find the distance between the two places.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 24 km (b) 36 km (c) 48 km (d) 54 km

Q21 Ravi starts from his home towards school at 8:20 a.m. on a bicycle. If he travels at 10 km/h, he reaches the school 8 minutes late, whereas if he travels at 16 km/h, he arrives 10 minutes early. Determine the starting time of the school.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 8 : 50 am (b) 9 : 00 am (c) 9 : 20 am (d) 10 : 05 am

Q22 A boy goes to school at 3 km/hr and returns at a speed of 2 km/hr. If he takes 5 hours in all, find the distance from his village to school.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 4 km (b) 6 km (c) 8 km (d) 10 km

Q23 A person travels a fixed distance at a certain usual speed. If he reduces his speed by 6 km/h, he reaches his destination 20 minutes late. If he reduces his speed by 2 km/h, he reaches 5 minutes late. Find his usual speed.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 12 km/h (b) 18 km/h (c) 24 km/h (d) 30 km/h

Q24 A commuter locomotive travels the initial one-third of its route at a uniform rate of 60 km/h, completing the remaining two-thirds at 90 km/h. Determine the average speed sustained over the entire trip.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 75 km/h (b) 72 km/h (c) 70 km/h (d) $\frac{540}{7}$ km/h

Q25 A vehicle has a running speed of 88 km/h, but due to frequent halts, its average speed reduces to 66 km/h. Find the time it stops in one hour.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 8 minutes (b) 10 minutes (c) 12 minutes (d) 15 minutes

Q26 Due to headwind, a drone took 2 hours to fly from City A to City B and 3 hours to return. If 72 km/h was the average speed for the entire journey, what was the distance (one way) between the two cities?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 160 km (b) 170 km (c) 180 km (d) 200 km

Q27 A man travels to his destination at 60% of his normal walking speed and arrives 1 hour 40 minutes later than usual. Find his normal time (in hours) taken to reach the destination.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 2.5 hours (b) 3.5 hours (c) 4.5 hours (d) 5.5 hours

Q28 A student goes to coaching at 6 km/hr and returns at 4 km/hr. If the total journey takes 4 hours, find the distance between home and coaching center.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 6.5 km (b) 9.6 km (c) 10.50 km (d) 12.45 km

Q29 A train travels a certain distance at a uniform speed. If the speed of the train is increased by 10 km/h, it takes 2 hours less than the scheduled time. If the speed of the train is further increased by another 10 km/h, it takes a further 45 minutes less than the reduced time. Find the distance (in km) covered by the train.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 48.5 km (b) 52.8 km (c) 58.6 km (d) 60.5 km

TOPIC · Problems on Trains

Q30 If a train takes 20 seconds to cross a platform of 180 m and the train's length is 120 m, what is its speed?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 45 km/h (b) 50 km/h (c) 60 km/h (d) 54 km/h

Q31 A 240 m long train passes a man walking at 6 km/h in the opposite direction in 12 seconds. Find the train's speed.

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 60 km/h (b) 62 km/h (c) 66 km/h (d) 72 km/h

ANSWER KEY · Mock Set 01

1 (c)	2 (d)	3 (c)	4 (b)	5 (c)
6 (c)	7 (b)	8 (c)	9 (b)	10 (d)
11 (d)	12 (c)	13 (b)	14 (d)	15 (a)
16 (c)	17 (b)	18 (c)	19 (b)	20 (b)
21 (b)	22 (b)	23 (b)	24 (d)	25 (d)
26 (c)	27 (a)	28 (b)	29 (b)	30 (d)
31 (c)				

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (c)

300 km

D/(s - 10) - D/s = 40 ⇒ D = 4s(s - 10); D/s - D/(s + 15) = 10 ⇒ D = 2s(s + 15)/3।

4(s - 10) = 2(s + 15)/3 ⇒ 12s - 120 = 2s + 30 ⇒ s = 15 ⇒ D = 4 × 15 × 5 = **300 km**।

Q2 Ans (d)

46.96 km/h

बराबर दूरी पर औसत = 3/(1/40 + 1/45 + 1/60) = 3 × 360/23 ≈ **46.96 km/h**।

Q3 Ans (c)

3 hours

दूरी = 5 × 6 = 30 km ⇒ 10 km/h पर **3 घंटे**।

Q4 Ans (b)

10 : 00 am

मिलने के बाद के समय से: मिलने तक का समय = √(80 × 45) = 60 मिनट ⇒ मुलाक़ात **10:00 am**।

Q5 Ans (c)

48 km/h

आधी-आधी दूरी पर औसत = 2 × 40 × 60/(40 + 60) = **48 km/h**।

Q6 Ans (c)

3 hours

दूरी = 240 km ⇒ 80 km/h पर **3 घंटे**।

Q7 Ans (b)

132 km

बस x km: x/30 + (240 - x)/55 = 6 ⇒ 11x + 6(240 - x) = 1980 ⇒ x = 108।

ट्रेन की दूरी = 240 - 108 = **132 km**।

Q8 Ans (c)

120 km

x/40 + (180 - x)/60 = 4 ⇒ 3x + 360 - 2x = 480 ⇒ **x = 120 km**।

Q9 Ans (b)

64.5 km/h

225/v + 150/75 + 525/(1.25v) = 12 ⇒ 225/v + 420/v = 10 ⇒ 645/v = 10 ⇒ **v = 64.5 km/h**।

Q10 Ans (d)

106.67 km/h

गतियाँ 400, 200, 100, 50; बराबर दूरी ⇒ औसत = 4/(1/400 + 1/200 + 1/100 + 1/50) = 4 × 400/15 ≈ **106.67 km/h**।

Q11 Ans (d)

36 km/h

समय = (1/3)/24 + (1/4)/36 + (5/12)/60 = 1/72 + 1/144 + 1/144 = 1/36 ⇒ औसत = **36 km/h**।

Q12 Ans (c)

3.6 hours

S_A/S_B = √(t_B/t_A) ⇒ 6/5 = √(a/2.5) ⇒ a = 2.5 × 36/25 = **3.6 घंटे**।

Q13 Ans (b)

60 minutes

गति 4/5 ⇒ समय 5/4 गुना ⇒ अतिरिक्त 1/4 समय = 15 मिनट ⇒ सामान्य समय = **60 मिनट**।

Q14 Ans (d)

40 minutes

D/24 - D/30 = 9/60 ⇒ D/120 = 0.15 ⇒ D = 18 km ⇒ 27 km/h पर 18/27 घंटा = **40 मिनट**।

Q15 **Ans (a)**

384 km/h

चारों भुजाएँ बराबर ⇒ औसत = 4/(1/200 + 1/400 + 1/600 + 1/800) = 4 × 2400/25 = **384 km/h**।

Q16 **Ans (c)**

50 km

D/40 - D/50 = 15/60 ⇒ D/200 = 1/4 ⇒ **D = 50 km**।

Q17 **Ans (b)**

80 km

D/40 - D/50 = 24/60 ⇒ D/200 = 0.4 ⇒ **D = 80 km**।

Q18 **Ans (c)**

24024 km

21s = 26(s - 220) ⇒ 5s = 5720 ⇒ s = 1144 ⇒ D = 21 × 1144 = **24,024 km**।

Q19 **Ans (b)**

30 m; 29 s

घन की भुजा = ∛1000 = 10 m। दूरी = 10 + 10 + 10 = 30 m।
धीमी भुजा 6 s, तेज़ (2 गुना) 3 s, ऊपर 10/0.5 = 20 s ⇒ **30 m; 29 s**।

Q20 **Ans (b)**

36 km

D/12 + D/9 = 7 ⇒ 7D/36 = 7 ⇒ **D = 36 km**।

Q21 **Ans (b)**

9 : 00 am

D/10 - D/16 = 18/60 ⇒ 6D/160 = 0.3 ⇒ D = 8 km। 10 km/h पर 48 मिनट ⇒ 9:08 पहुँचा (8 मिनट late)।
School का समय = **9:00 am**।

Q22 **Ans (b)**

6 km

D/3 + D/2 = 5 ⇒ 5D/6 = 5 ⇒ **D = 6 km**।

Q23 **Ans (b)**

18 km/h

D/(s - 6) - D/s = 1/3 ⇒ 6D = s(s - 6)/3; D/(s - 2) - D/s = 1/12 ⇒ 2D = s(s - 2)/12।
भाग देने पर 3(s - 2)/(s - 6) = 4 ⇒ **s = 18 km/h**।

Q24 **Ans (d)**

$\frac{540}{7}$ km/h

औसत = 1/[(1/3)/60 + (2/3)/90] = 1/(1/180 + 1/135) = 540/7 = **540/7 km/h**।

Q25 **Ans (d)**

15 minutes

रुकने का समय/घंटा = (88 - 66)/88 × 60 = **15 मिनट**।

Q26 **Ans (c)**

180 km

कुल दूरी 2D, कुल समय 5 घंटे ⇒ 2D/5 = 72 ⇒ **D = 180 km**।

Q27 **Ans (a)**

2.5 hours

गति 60% ⇒ समय 5/3 गुना ⇒ अतिरिक्त 2T/3 = 5/3 घंटा ⇒ **T = 2.5 घंटे**।

Q28 **Ans (b)**

9.6 km

D/6 + D/4 = 4 ⇒ 5D/12 = 4 ⇒ **D = 9.6 km**।

Q29 **Ans (b)**

52.8 km

D/s - D/(s + 10) = 2 ⇒ D = s(s + 10)/5; D/(s + 10) - D/(s + 20) = 0.75 ⇒ D = 0.075(s + 10)(s + 20)।
s/5 = 0.075(s + 20) ⇒ 0.125s = 1.5 ⇒ s = 12 ⇒ D = 12 × 22/5 = **52.8 km**।

Q30 **Ans (d)**

54 km/h

कुल दूरी = 120 + 180 = 300 m, 20 s में ⇒ 15 m/s = 15 × 18/5 = **54 km/h**।

Q31 **Ans (c)**

66 km/h

सापेक्ष गति = 240/12 = 20 m/s = 72 km/h (विपरीत दिशा) ⇒ ट्रेन = 72 - 6 = **66 km/h**।

CHAPTER 14

Algebra & Progression

Identities · x + 1/x · Polynomials · Equations · AP/GP

121	2	5	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Algebra & Progression

01 x + 1/x की श्रृंखला
$x^2 + 1/x^2 = k^2 - 2$; $x^3 + 1/x^3 = k^3 - 3k$; $x^4 + 1/x^4 = (x^2 + 1/x^2)^2 - 2$।

02 a + b + c = 0
$a^3 + b^3 + c^3 = 3abc$; $(a + b) = -c$ आदि।

03 Componendo-dividendo
$(\sqrt{(a+x)} + \sqrt{(a-x)})/(\sqrt{(a+x)} - \sqrt{(a-x)}) = k \Rightarrow x = 2ak/(k^2 + 1)$।

04 √((p+√q)/(p-√q))
यदि $p^2 - q = 1$ हो तो मान $= p + \sqrt{q}$ और $x + 1/x = 2p$।

05 सर्वसमिकाएँ
$a^3 + b^3 + c^3 - 3abc = (a + b + c)[(a + b + c)^2 - 3(ab + bc + ca)]$।

Mock Set 01 Q1–Q25 · 30 Sep → 7 Oct

TOPIC · Algebra (1/5)

Q1 Solve: $(x+2)^2 - (x-2)^2$

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 8x (b) 2x + 4 (c) 10x (d) x^2

Q2 If x = 1.5 and y = 0.5, find the value of $\frac{x^3-y^3}{x^2+xy+y^2} + \frac{x^3+y^3}{x^2-xy+y^2}$.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 1 (b) 3 (c) 2 (d) 4

Q3 If $x + \frac{1}{x} = 3\sqrt{2}$, then find the value of $\frac{x}{x^2-1}$.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) $\frac{1}{\sqrt{14}}$ (b) $\frac{1}{\sqrt{12}}$ (c) $\frac{1}{\sqrt{18}}$ (d) $\frac{1}{\sqrt{19}}$

Q4 If $\sqrt{1 + \frac{x}{49}} = \frac{8}{7}$, find the value of x.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 10 (b) 13 (c) 15 (d) 18

Q5 If $x\left(7 - \frac{3}{x}\right) = \frac{7}{x}$, then find the value of $x^2 + \frac{1}{x^2}$.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) $\frac{107}{49}$ (b) $\frac{53}{49}$ (c) $\frac{125}{49}$ (d) $\frac{47}{49}$

Q6 If the expression $64x^2 + kxy + 81y^2$ is a perfect square, what are the possible values of k?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) ±72 (b) ±102 (c) 36 (d) ±144

Q7 What term must be added to the expression $4a^2 + 20ab$ to make it a perfect square trinomial?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) $5b^2$ (b) $25b^2$ (c) $10b^2$ (d) $100ab^2$

Q8 If $a^2 + b^2 = 89$ and $ab = 20$, find the value of $|a - b|$.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 3 (b) 5 (c) 7 (d) 9

Q9 Simplify the following radical expression completely:

$\frac{\sqrt{2}+1}{\sqrt{2}-1}$

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) $3-2\sqrt{2}$ (b) $1+2\sqrt{2}$ (c) $3+2\sqrt{2}$ (d) $4+2\sqrt{2}$

Q10 A student was asked to multiply a number by 5/9, but instead, he divided it by 5/9. If his answer was 56 more than the correct answer, find the number.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 54 (b) 45 (c) 76 (d) 85

Q11 The product (x - 1)(x + 1)(x² + 1)(x⁴ + 1) simplifies to which of the following expressions?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) $x^8 - 1$ (b) $x^8 + 1$ (c) $x^4 - 1$ (d) $x^7 - 1$

Q12 What is the value of $\frac{p^3-q^3}{p-q} - 3pq$, if p = 7.85 and q = 2.15?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 18.76 (b) 32.49 (c) 25.87 (d) 49.87

Q13 If $x = 5 + 2\sqrt{6}$, what is the value of $x^2 + 1/x^2$?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 64 (b) 87 (c) 92 (d) 98

Q14 If $x + \frac{1}{x} = 8$, then find the value of $x^4 + \frac{1}{x^4}$.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 3846 (b) 3844 (c) 3842 (d) 3840

Q15 Two real numbers together produce a total of 9. The total of their squared values is 45. Determine the multiplication outcome of the two numbers.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 18 (b) 16 (c) 21 (d) 14

Q16 Simplify $(3x - 4y)^2 + (3x + 4y)^2$.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) $18x^2 + 16y^2$ (b) $18x^2 - 32y^2$ (c) $36x^2 + 32y^2$ (d) $18x^2 + 32y^2$

Q17 Simplify the expression $(a + b)^3 - (a - b)^3$.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) $6a^2b + 2a^3$ (b) $6ab^2 + 2a^3$ (c) $2b^3 + 6ab$ (d) $6a^2b + 2b^3$

Q18 If a + b = 18 and ab = 46, compute $a^3 + b^3$.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 2484 (b) 3348 (c) 4328 (d) 5832

Q19 If x + y = 20 and xy = 10, then find the value of $x^3 + y^3$.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 2100 (b) 2500 (c) 7100 (d) 7400

Q20 Given $x = \frac{1}{2-\sqrt{3}}$, find the value of $x - \frac{1}{x}$.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) $2\sqrt{3}$ (b) $\sqrt{3}$ (c) $5\sqrt{3}$ (d) $\sqrt{2}$

Q21 If $a^2 + b^2 = 57$ and ab = 16, what is the absolute value of a - b?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 5 (b) 57 (c) 9 (d) 73

Q22 If $x + \frac{1}{x} = 4\sqrt{2}$, then find the value of $x^4 + \frac{1}{x^4}$.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 884 (b) 878 (c) 898 (d) 866

Q23 If $x = \sqrt{\frac{6+\sqrt{35}}{6-\sqrt{35}}}$, then what is the value of $x^2 + \frac{1}{x^2}$?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 75 (b) 86 (c) 121 (d) 142

Q24 Find the value of k, if x = 1, y = 2 is a solution of the equation 2x + 3y = k.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) -8 (b) 4 (c) 6 (d) 8

Q25 Determine the number to be added to $144p^2 - 72p$ so that it becomes a perfect square.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\frac{1}{4}$ (b) 3 (c) 9 (d) $\frac{1}{16}$

ANSWER KEY · Mock Set 01

1 (a)	2 (b)	3 (a)	4 (c)	5 (a)
6 (d)	7 (b)	8 (c)	9 (c)	10 (b)
11 (a)	12 (b)	13 (d)	14 (c)	15 (a)
16 (d)	17 (d)	18 (b)	19 (d)	20 (a)
21 (a)	22 (c)	23 (d)	24 (d)	25 (c)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (a)**

8x

$(a + b)^2 - (a - b)^2 = 4ab \Rightarrow 4 \times x \times 2 =$ **8x**।

Q2 **Ans (b)**

आकृति 3

$(x^3 - y^3)/(x^2 + xy + y^2) = x - y$ और $(x^3 + y^3)/(x^2 - xy + y^2) = x + y$।
योग $= 2x = 2 \times 1.5 =$ **3**।

Q3 **Ans (a)**

$\frac{1}{\sqrt{14}}$

$x/(x^2 - 1) = 1/(x - 1/x)$। $(x - 1/x)^2 = (x + 1/x)^2 - 4 = 18 - 4 = 14$।
मान = **1/√14**।

Q4 **Ans (c)**

15

वर्ग करें: $1 + x/49 = 64/49 \Rightarrow x/49 = 15/49 \Rightarrow$ **x = 15**।

Q5 **Ans (a)**

$\frac{107}{49}$

$7x - 3 = 7/x \Rightarrow 7(x - 1/x) = 3 \Rightarrow x - 1/x = 3/7$।
$x^2 + 1/x^2 = (3/7)^2 + 2 = 9/49 + 98/49 =$ **107/49**।

Q6 **Ans (d)**

±144

$(8x \pm 9y)^2 = 64x^2 \pm 144xy + 81y^2 \Rightarrow$ **k = ±144**।

Q7 **Ans (b)**

25b²

$(2a)^2 + 2(2a)(5b) + (5b)^2 = (2a + 5b)^2 \Rightarrow$ जोड़ना होगा **25b²**।

Q8 **Ans (c)**

7

$(a - b)^2 = a^2 + b^2 - 2ab = 89 - 40 = 49 \Rightarrow |a - b| =$ **7**।

Q9 **Ans (c)**

$3 + 2\sqrt{2}$

$(\sqrt{2} + 1)/(\sqrt{2} - 1) \times (\sqrt{2} + 1)/(\sqrt{2} + 1) = (\sqrt{2} + 1)^2/1 = 2 + 1 + 2\sqrt{2} =$ **3 + 2√2**।

Q10 **Ans (b)**

45

$x \times 9/5 - x \times 5/9 = 56 \Rightarrow x(81 - 25)/45 = 56 \Rightarrow 56x/45 = 56 \Rightarrow$ **x = 45**।

Q11 **Ans (a)**

$x^8 - 1$

$(x - 1)(x + 1) = x^2 - 1 \rightarrow (x^2 - 1)(x^2 + 1) = x^4 - 1 \rightarrow (x^4 - 1)(x^4 + 1) =$ **$x^8 - 1$**।

Q12 **Ans (b)**

32.49

$(p^3 - q^3)/(p - q) = p^2 + pq + q^2 \Rightarrow p^2 + pq + q^2 - 3pq = (p - q)^2$।
$(7.85 - 2.15)^2 = 5.7^2 =$ **32.49**।

Q13 **Ans (d)**

98

$x = 5 + 2\sqrt{6} \Rightarrow 1/x = 5 - 2\sqrt{6} \Rightarrow x + 1/x = 10$।
$x^2 + 1/x^2 = 10^2 - 2 =$ **98**।

Q14 **Ans (c)**

3842

$x^2 + 1/x^2 = 8^2 - 2 = 62 \Rightarrow x^4 + 1/x^4 = 62^2 - 2 =$ **3842**।

Q15 **Ans (a)**

18

$2ab = (a + b)^2 - (a^2 + b^2) = 81 - 45 = 36 \Rightarrow ab =$ **18**।

Q16 **Ans (d)**

$18x^2 + 32y^2$

$(a - b)^2 + (a + b)^2 = 2(a^2 + b^2) = 2(9x^2 + 16y^2) =$ **$18x^2 + 32y^2$**।

Q17 **Ans (d)**

$6a^2b + 2b^3$

$(a + b)^3 - (a - b)^3 = 2(3a^2b + b^3) =$ **$6a^2b + 2b^3$**।

Q18 **Ans (b)**

3348

$a^3 + b^3 = (a + b)^3 - 3ab(a + b) = 5832 - 3 \times 46 \times 18 = 5832 - 2484 =$ **3348**।

Q19 **Ans (d)**

7400

$x^3 + y^3 = 20^3 - 3 \times 10 \times 20 = 8000 - 600 =$ **7400**।

Q20 **Ans (a)**

$2\sqrt{3}$

$x = 1/(2 - \sqrt{3}) = 2 + \sqrt{3} \Rightarrow 1/x = 2 - \sqrt{3} \Rightarrow x - 1/x = 2\sqrt{3}$।

Q21 **Ans (a)**

5

$(a - b)^2 = 57 - 32 = 25 \Rightarrow |a - b| = 5$।

Q22 **Ans (c)**

898

$x^2 + 1/x^2 = 32 - 2 = 30 \Rightarrow x^4 + 1/x^4 = 900 - 2 = 898$।

Q23 **Ans (d)**

142

$(6 + \sqrt{35})(6 - \sqrt{35}) = 1 \Rightarrow x = 6 + \sqrt{35}, 1/x = 6 - \sqrt{35} \Rightarrow x + 1/x = 12$।

$x^2 + 1/x^2 = 144 - 2 = 142$।

Q24 **Ans (d)**

8

$2(1) + 3(2) = k \Rightarrow k = 8$।

Q25 **Ans (c)**

9

$144p^2 - 72p = (12p)^2 - 2(12p)(3) \Rightarrow (12p - 3)^2$ के लिए **9** जोड़ें।

Mock Set 02 Q26–Q50 · 7 Oct → 10 Oct

TOPIC · Algebra (2/5)

Q26 If $x = \sqrt{\frac{10+3\sqrt{11}}{10-3\sqrt{11}}}$, then what is the value of $x + \frac{1}{x}$?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 12 (b) 14 (c) 16 (d) 20

Q27 If a + b = 20, ab = 84, then find $a^4 + b^4$.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 39012 (b) 39112 (c) 39332 (d) 39712

Q28 If a + b + c = 31 and ab + bc + ca = 37, find the value of $a^2 + b^2 + c^2$.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 961 (b) 1035 (c) 887 (d) 878

Q29 If $x + \frac{1}{x} = 6$, then find the value of $x^6 + \frac{1}{x^6}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 39204 (b) 39202 (c) 39304 (d) 39302

Q30 If x = 109 and y = 98, evaluate the expression $x^2 - y^2 + 2x - 2y$ without using direct multiplication.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 1089 (b) 1386 (c) 2299 (d) 2357

Q31 If $p + q + r = 0$ and $pq + qr + rp = -18$, then find the value of $p^2 + q^2 + r^2$.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) -18 (b) -36 (c) 0 (d) 36

Q32 If $A = (3a + 5b)^2$ and $B = (3a - 5b)^2$, which of the following expressions is exactly equal to A - B?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 15ab (b) 60ab (c) 30ab (d) $18a^2 + 50b^2$

Q33 Factorise: $a^2 + b^2 + 2ab$.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) $(a - b)^2$ (b) $(a + b)^2$
(c) $(a + b)(a - b)$ (d) $(a - b)(a + b)^2$

Q34 If $x - 1/x = 2$, find the value of $x^4 + 1/x^4$.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 18 (b) 20 (c) 34 (d) 24

Q35 What is the value of m and n?
$(4 + 2\sqrt{6})^2 = n(5 + m\sqrt{6})$

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) m=3, n=4 (b) m = 1, n=2
(c) m = 1, n=4 (d) m = 2, n = 8

Q36 Find the solution of following simultaneous equation $2x + y = 5\ x - y = 4$

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) X=3,Y=-1 (b) X=-3,Y=1 (c) X=-3,Y=-1 (d) X=3,Y=1

Q37 If a + b = 19 and ab = 90, then find $(a-b)^2$.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 0 (b) 1 (c) 361 (d) 412

Q38 If x = $\sqrt{\frac{2+\sqrt{3}}{2-\sqrt{3}}}$ then what is the value of x² + x − 9?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) $5\sqrt{3}$ (b) $5\sqrt{2}$ (c) 0 (d) 1

Q39 If $x + \frac{1}{x} = \sqrt{17}$, then find the value of $\frac{x^4-1}{x^2}$.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) $\pm\sqrt{221}$ (b) $\pm\sqrt{223}$ (c) $\pm\sqrt{119}$ (d) $\pm\sqrt{116}$

Q40 If u + v = 17 and uv = 39, find the value of u² + v².

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 207 (b) 209 (c) 211 (d) 213

Q41 If $x + \frac{1}{x} = 12$, then find the value of $x^4 + \frac{1}{x^4} + x^2 + \frac{1}{x^2}$.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 20306 (b) 20304 (c) 20162 (d) 20448

Q42 What is the value of 999² − 998²?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 1995 (b) 1997 (c) 1999 (d) 2001

Q43 If $y + \frac{1}{y} = 17$, find the value of $y^3 + \frac{1}{y^3}$.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 4913 (b) 4862 (c) 4964 (d) 4896

Q44 If a + b = 22 and ab = 85, evaluate a² + b².

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 308 (b) 314 (c) 326 (d) 382

Q45 If $\frac{\sqrt{7+X}+\sqrt{7-X}}{\sqrt{7+X}-\sqrt{7-X}} = 5$, then what is the value of X?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) $\frac{1}{2}$ (b) $\frac{35}{13}$ (c) $\frac{3}{2}$ (d) $\frac{14}{19}$

Q46 In the expansion of the trinomial square (2x − 3y + 4z)², what is the sum of the coefficients of the xy and yz terms?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) -6 (b) 18 (c) -36 (d) 12

Q47 Find the value of $(8a + 5b)^2 - (8a - 5b)^2$.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 16ab (b) 80ab (c) $128a^2 + 50b^2$ (d) 160ab

Q48 For what value of x is the statement $\left(\frac{x}{21}\right)\left(\frac{x}{84}\right) = 1$ true?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 28 (b) 42 (c) 38 (d) 52

Q49 If 3x = 2y, find the value of $\frac{y^2-x^2}{y^2+2xy+x^2}$.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) $\frac{1}{5}$ (b) 2 (c) $\frac{3}{5}$ (d) 4

Q50 If x = $\sqrt{\frac{\sqrt{5}+2}{\sqrt{5}-2}}$ then what is the value of x² − 2√5x + 8?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 2 (b) 4 (c) 5 (d) 7

ANSWER KEY · Mock Set 02

26 (d)	27 (d)	28 (c)	29 (b)	30 (c)
31 (d)	32 (b)	33 (b)	34 (c)	35 (d)
36 (a)	37 (b)	38 (a)	39 (a)	40 (c)
41 (b)	42 (b)	43 (b)	44 (b)	45 (b)
46 (c)	47 (d)	48 (b)	49 (a)	50 (d)

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (d)

20

(10 + 3√11)(10 − 3√11) = 100 − 99 = 1 ⇒ x = 10 + 3√11 ⇒ x + 1/x = **20**।

Q27 Ans (d)

39712

a² + b² = 400 − 168 = 232 ⇒ a⁴ + b⁴ = 232² − 2 × 84² = 53824 − 14112 = **39712**।

Q28 Ans (c)

887

a² + b² + c² = 31² − 2 × 37 = 961 − 74 = **887**।

Q29 Ans (b)

39202

x³ + 1/x³ = 6³ − 3 × 6 = 198 ⇒ x⁶ + 1/x⁶ = 198² − 2 = **39202**।

Q30 Ans (c)

2299

x² − y² + 2(x − y) = (x − y)(x + y + 2) = 11 × 209 = **2299**।

Q31 **Ans (d)**

36

$p^2 + q^2 + r^2 = (p + q + r)^2 - 2(pq + qr + rp) = 0 + 36 = \mathbf{36}$।

Q32 **Ans (b)**

60ab

$A - B = 4 \times 3a \times 5b = \mathbf{60ab}$।

Q33 **Ans (b)**

$(a + b)^2$

$a^2 + 2ab + b^2 = \mathbf{(a + b)^2}$।

Q34 **Ans (c)**

34

$x^2 + 1/x^2 = 2^2 + 2 = 6 \Rightarrow x^4 + 1/x^4 = 36 - 2 = \mathbf{34}$।

Q35 **Ans (d)**

m = 2, n = 8

$(4 + 2\sqrt{6})^2 = 16 + 24 + 16\sqrt{6} = 40 + 16\sqrt{6} = 8(5 + 2\sqrt{6}) \Rightarrow \mathbf{m = 2, n = 8}$।

Q36 **Ans (a)**

X=3,Y=-1

जोड़ने पर $3x = 9 \Rightarrow x = 3$; $y = 5 - 6 = -1 \Rightarrow \mathbf{x = 3, y = -1}$।

Q37 **Ans (b)**

1

$(a - b)^2 = (a + b)^2 - 4ab = 361 - 360 = \mathbf{1}$।

Q38 **Ans (a)**

$5\sqrt{3}$

$x = \sqrt{[(2 + \sqrt{3})/(2 - \sqrt{3})]} = (2 + \sqrt{3})/\sqrt{1} = 2 + \sqrt{3} \Rightarrow x^2 = 7 + 4\sqrt{3}$।
$x^2 + x - 9 = 7 + 4\sqrt{3} + 2 + \sqrt{3} - 9 = \mathbf{5\sqrt{3}}$।

Q39 **Ans (a)**

$\pm\sqrt{221}$

$(x^4 - 1)/x^2 = x^2 - 1/x^2 = (x + 1/x)(x - 1/x)$। $(x - 1/x)^2 = 17 - 4 = 13$।
मान $= \sqrt{17} \times (\pm\sqrt{13}) = \mathbf{\pm\sqrt{221}}$।

Q40 **Ans (c)**

211

$u^2 + v^2 = 289 - 78 = \mathbf{211}$।

Q41 **Ans (b)**

20304

$x^2 + 1/x^2 = 144 - 2 = 142$; $x^4 + 1/x^4 = 142^2 - 2 = 20162$।
योग $= 20162 + 142 = \mathbf{20304}$।

Q42 **Ans (b)**

1997

$999^2 - 998^2 = (999 - 998)(999 + 998) = \mathbf{1997}$।

Q43 **Ans (b)**

4862

$y^3 + 1/y^3 = 17^3 - 3 \times 17 = 4913 - 51 = \mathbf{4862}$।

Q44 **Ans (b)**

314

$a^2 + b^2 = 484 - 170 = \mathbf{314}$।

Q45 **Ans (b)**

$\frac{35}{13}$

Componendo-dividendo: $\sqrt{(7 + X)}/\sqrt{(7 - X)} = (5 + 1)/(5 - 1) = 3/2 \Rightarrow (7 + X)/(7 - X) = 9/4$।
$28 + 4X = 63 - 9X \Rightarrow \mathbf{X = 35/13}$।

Q46 **Ans (c)**

-36

xy पद $= 2(2x)(-3y) = -12xy$; yz पद $= 2(-3y)(4z) = -24yz \Rightarrow$ योग $= \mathbf{-36}$।

Q47 **Ans (d)**

160ab

$4 \times 8a \times 5b = \mathbf{160ab}$।

Q48 **Ans (b)**

42

$x^2/(21 \times 84) = 1 \Rightarrow x^2 = 1764 \Rightarrow \mathbf{x = 42}$।

Q49 **Ans (a)**

$\frac{1}{5}$

$x : y = 2 : 3 \Rightarrow (y^2 - x^2)/(y + x)^2 = (y - x)/(y + x) = 1/5 \Rightarrow \mathbf{1/5}$।

Q50 **Ans (d)**

7

$(\sqrt{5} + 2)(\sqrt{5} - 2) = 1 \Rightarrow x = \sqrt{5} + 2$।
$x^2 - 2\sqrt{5}x + 8 = (x - \sqrt{5})^2 + 3 = 4 + 3 = \mathbf{7}$।

Mock Set 03 Q51–Q75 · 10 Oct → 15 Oct

TOPIC · Algebra (3/5)

Q51 Given that $p+q+r=0$ (where $p,q,r \neq 0$), what is the value of the expression $\frac{p^2}{qr}+\frac{q^2}{rp}+\frac{r^2}{pq}$?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 3 (b) 6 (c) 9 (d) 10

Q52 If $x=7+4\sqrt{3}$, what is the value of $\left(\sqrt{x}-\frac{1}{\sqrt{x}}\right)^2$?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 10 (b) 11 (c) 12 (d) 14

Q53 If $x=\sqrt{\frac{7+4\sqrt{3}}{7-4\sqrt{3}}}$, then what is the value of $x^2-14x+2$?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 0 (b) 1 (c) 2 (d) 3

Q54 If $x+\frac{1}{x}=6$, find the value of $x^5+\frac{1}{x^5}$.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 6276 (b) 2726 (c) 6726 (d) 7662

Q55 If $x-\frac{1}{x}=\sqrt{5}$, what is the value of $x^2+\frac{1}{x^2}$?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 2 (b) 4 (c) 5 (d) 7

Q56 If $x=2+\sqrt{3}$, what is the value of $x+\frac{1}{x}$?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 1 (b) 2 (c) 3 (d) 4

Q57 If $y+\frac{1}{y}=18$, find the value of $y^3+\frac{1}{y^3}$.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 5118 (b) 5338 (c) 5778 (d) 5998

Q58 If $2x=0.5y$, then find $\frac{y^2-x^2}{y^2+2xy+x^2}$.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) $\frac{2}{5}$ (b) $\frac{4}{5}$ (c) $\frac{3}{5}$ (d) $\frac{7}{5}$

Q59 If $a+b+c=17$ and $ab+bc+ca=21$, what is the value of $a^3+b^3+c^3-3abc$?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 3100 (b) 3842 (c) 4022 (d) 5032

Q60 If $a+b=17$ and $ab=60$, then find the value of $(a-b)^4$.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 83521 (b) 28561 (c) 49 (d) 2401

Q61 If $a=\sqrt{5+2\sqrt{6}}$ and $b=\sqrt{5-2\sqrt{6}}$, evaluate the value of the following expression: a^6+b^6.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 970 (b) 1000 (c) 1030 (d) 940

Q62 If p - q = 11 and pq = 30, find the value of p^2+q^2.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 181 (b) 61 (c) 91 (d) 121

Q63 If $x \neq 0$ and $x-\frac{1}{x}=2$, what is the value of $x^6+\frac{1}{x^6}$?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 194 (b) 196 (c) 198 (d) 204

Q64 If $x=\sqrt{\frac{5+2\sqrt{6}}{5-2\sqrt{6}}}$, then what is the value of $x^2-10x+5$?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 1 (b) 2 (c) 3 (d) 4

Q65 A square garden has side $(6x+5y)$ meters. A square pond inside it has side $(2x+y)$ meters. Find the area of the garden excluding the pond in square meters, where $x,y>0$.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) $8(x+y)(4x+3y)$ (b) $8(2x+y)(4x+3y)$
(c) $8(x+2y)(5x+3y)$ (d) $2(x+y)(4x+5y)$

Q66 If $x+\frac{1}{x}=\sqrt{13}$, then find the value of $\frac{3x}{x^2-1}$.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) ±1 (b) ±2 (c) ±3 (d) ±4

Q67 The square of a positive number exceeds the number itself by 182. Find the number.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 12 (b) 13 (c) 14 (d) 15

Q68 If $x=\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, then find the value of $x^2+\frac{1}{x^2}$.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 10 (b) 42 (c) 98 (d) 83

Q69 For $a = 2, b = 3$ and $c = 5$, evaluate: $(a+b+c)^3 - (a+b-c)^3 - (a-b+c)^3 - (-a)^3$.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 600 (b) 660 (c) 720 (d) 780

Q70 If m - n = 15 and mn = 26, find the value of (m + n)².

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 229 (b) 119 (c) 239 (d) 329

Q71 Pranita is an animal-rights activist and houses certain number of dogs, cats and birds in her farm. The total number of heads of all these three species in the farm counts to 79. If the number of birds is 250% of the number of cats and the total number of legs of the three species in the farm (combined) is 236, what is the ratio of the number of cats, birds and dogs respectively?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 20:50:9 (b) 16:40:23 (c) 12:60:7 (d) 11:55:13

Q72 If $x + \frac{1}{x} = \sqrt{5}$, then find the value of $x^2 - \frac{1}{x^2}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) $\pm\sqrt{5}$ (b) $\pm\sqrt{7}$ (c) $\pm\sqrt{8}$ (d) $\pm\sqrt{3}$

Q73 Given that $m - n = 7$ and $mn = 18$, find the value of $(m+n)^2$.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 49 (b) 324 (c) 72 (d) 121

Q74 Let $x = \sqrt{5} + \sqrt{3}$ and $y = \sqrt{5} - \sqrt{3}$. What is the value of $\frac{x^2+y^2}{xy}$?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 12 (b) 8 (c) 16 (d) 24

Q75 If $x + y + z = 7$, $xy + yz + zx = 14$ and $xyz = 8$, what is the value of $x^3 + y^3 + z^3$?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 67 (b) 71 (c) 73 (d) 77

ANSWER KEY · Mock Set 03

51 (a)	52 (c)	53 (b)	54 (c)	55 (d)
56 (d)	57 (c)	58 (c)	59 (b)	60 (d)
61 (a)	62 (a)	63 (c)	64 (d)	65 (a)
66 (a)	67 (c)	68 (c)	69 (c)	70 (d)
71 (b)	72 (a)	73 (d)	74 (b)	75 (c)

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q51 Ans (a)

आकृति 3

p + q + r = 0 ⇒ p³ + q³ + r³ = 3pqr।
p²/qr + q²/rp + r²/pq = (p³ + q³ + r³)/pqr = **3**।

Q52 Ans (c)

12

7 + 4√3 = (2 + √3)² ⇒ √x = 2 + √3, 1/√x = 2 - √3 ⇒ अंतर = 2√3 ⇒ वर्ग = **12**।

Q53 Ans (b)

आकृति 1

x = 7 + 4√3 (क्योंकि हर × अंश = 1) ⇒ x + 1/x = 14 ⇒ x² - 14x + 1 = 0।
x² - 14x + 2 = -1 + 2 = **1**।

Q54 Ans (c)

6726

x² + 1/x² = 34, x³ + 1/x³ = 216 - 18 = 198।
x⁵ + 1/x⁵ = 34 × 198 - 6 = 6732 - 6 = **6726**।

Q55 Ans (d)

7

x² + 1/x² = (x - 1/x)² + 2 = 5 + 2 = **7**।

Q56 Ans (d)

आकृति 4

1/x = 2 - √3 ⇒ x + 1/x = **4**।

Q57 Ans (c)

5778

y³ + 1/y³ = 18³ - 3 × 18 = 5832 - 54 = **5778**।

Q58 Ans (c)

$\frac{3}{5}$

y = 4x ⇒ (y - x)/(y + x) = 3x/5x = **3/5**।

Q59 **Ans (b)**

3842

$a^3 + b^3 + c^3 - 3abc = (a + b + c)[(a + b + c)^2 - 3(ab + bc + ca)] = 17(289 - 63) = 17 \times 226 =$ **3842**।

Q60 **Ans (d)**

2401

$(a - b)^2 = (a + b)^2 - 4ab = 289 - 240 = 49 \Rightarrow (a - b)^4 = 49^2 =$ **2401**।

Q61 **Ans (a)**

970

$5 + 2\sqrt{6} = (\sqrt{3} + \sqrt{2})^2 \Rightarrow a = \sqrt{3} + \sqrt{2}, b = \sqrt{3} - \sqrt{2} \Rightarrow a^2 + b^2 = 10$, $ab = 1$।

$a^6 + b^6 = (a^2 + b^2)^3 - 3a^2b^2(a^2 + b^2) = 1000 - 30 =$ **970**।

Q62 **Ans (a)**

181

$p^2 + q^2 = (p - q)^2 + 2pq = 121 + 60 =$ **181**।

Q63 **Ans (c)**

198

$x^2 + 1/x^2 = 4 + 2 = 6 \Rightarrow x^6 + 1/x^6 = 6^3 - 3 \times 6 =$ **198**।

Q64 **Ans (d)**

आकृति 4

$x = 5 + 2\sqrt{6}$ (क्योंकि $(5 + 2\sqrt{6})(5 - 2\sqrt{6}) = 1$) $\Rightarrow x + 1/x = 10 \Rightarrow x^2 - 10x + 1 = 0$।

$x^2 - 10x + 5 = -1 + 5 =$ **4**।

Q65 **Ans (a)**

$8(x + y)(4x + 3y)$

$(6x + 5y)^2 - (2x + y)^2 = (4x + 4y)(8x + 6y) =$ **8(x + y)(4x + 3y)**।

Q66 **Ans (a)**

±1

$3x/(x^2 - 1) = 3/(x - 1/x)$। $(x - 1/x)^2 = 13 - 4 = 9 \Rightarrow x - 1/x = \pm 3 \Rightarrow$ मान = **±1**।

Q67 **Ans (c)**

14

$n^2 - n = 182 \Rightarrow (n - 14)(n + 13) = 0 \Rightarrow$ **n = 14**।

Q68 **Ans (c)**

98

$x = (\sqrt{3} + \sqrt{2})^2/(3 - 2) = 5 + 2\sqrt{6} \Rightarrow x + 1/x = 10 \Rightarrow x^2 + 1/x^2 = 100 - 2 =$ **98**।

Q69 **Ans (c)**

720

सर्वसमिका: $(a + b + c)^3 - (a + b - c)^3 - (a - b + c)^3 - (-a + b + c)^3 = 24abc$।

$= 24 \times 2 \times 3 \times 5 =$ **720**।

Q70 **Ans (d)**

329

$(m + n)^2 = (m - n)^2 + 4mn = 225 + 104 =$ **329**।

Q71 **Ans (b)**

16:40:23

Cats = c, Birds = 2.5c, Dogs = d। सिर: $3.5c + d = 79$; पैर: $4c + 2(2.5c) + 4d = 236 \Rightarrow 9c + 4d = 236$।

$d = 79 - 3.5c$ रखकर: $9c + 316 - 14c = 236 \Rightarrow c = 16$, birds = 40, dogs = 23 ⇒ **16 : 40 : 23**।

Q72 **Ans (a)**

$\pm\sqrt{5}$

$x^2 - 1/x^2 = (x + 1/x)(x - 1/x)$; $(x - 1/x)^2 = 5 - 4 = 1 \Rightarrow \pm 1 \Rightarrow$ मान = **±√5**।

Q73 **Ans (d)**

121

$(m + n)^2 = 49 + 4 \times 18 =$ **121**।

Q74 **Ans (b)**

8

$x^2 + y^2 = 2(5 + 3) = 16$, $xy = 5 - 3 = 2 \Rightarrow 16/2 =$ **8**।

Q75 **Ans (c)**

73

$x^2 + y^2 + z^2 = 49 - 28 = 21$। $x^3 + y^3 + z^3 = 3xyz + (x + y + z)(21 - 14) = 24 + 49 =$ **73**।

Mock Set 04 Q76–Q100 · 15 Oct → 24 Oct

TOPIC · Algebra (4/5)

Q76 If $\sqrt{1 + \frac{x}{121}} = \frac{12}{11}$, find the value of x.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 11 (b) 20 (c) 23 (d) 18

Q77 If $x + \frac{1}{x} = 23$, then find the value of $x^2 + \frac{1}{x^2} + x + \frac{1}{x}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 517 (b) 527 (c) 550 (d) 570

Q78 If $X = \sqrt{\frac{\sqrt{10}+3}{\sqrt{10}-3}}$, then what is the value of $X^2 + \frac{1}{X^2}$?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 16 (b) 25 (c) 32 (d) 38

Q79 If p + q + r = 24 and pq + qr + rp = 65, then find the value of p² + q² + r².

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 412 (b) 446 (c) 486 (d) 526

Q80 If $x^2 + \frac{1}{x^2} = 62$, what is the positive value of $x + \frac{1}{x}$?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 7 (b) 8 (c) 9 (d) 10

Q81 Given (a + b)² = 25 and (a - b)² = 9, find a² - b².

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 15 (b) 12 (c) 7 (d) 10

Q82 If (x + y)³ = 27 and x - y = 1, find the value of xy.

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 5 (b) 4 (c) 2 (d) 3

Q83 The sum of seven consecutive natural numbers is K. If the next three natural numbers are also included, the new sum becomes K + 93. What is the largest of the original seven numbers?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 31 (b) 29 (c) 34 (d) 36

Q84 If (x + y)²= 121 and (x - y)² = 9, what is the exact numerical value of the product xy?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 14 (b) 56 (c) 130 (d) 28

Q85 If $\frac{\sqrt{10+y}+\sqrt{10-y}}{\sqrt{10+y}-\sqrt{10-y}} = 4$,then find the value of y.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) $\frac{1}{2}$ (b) $\frac{80}{17}$ (c) $\frac{40}{19}$ (d) $\frac{3}{4}$

Q86 If a + b = 12, ab = 20, find a⁴ + b⁴.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 10000 (b) 10816 (c) 10016 (d) 11616

Q87 Solve for X: $\frac{\sqrt{a+x}+\sqrt{a-x}}{\sqrt{a+x}-\sqrt{a-x}} = k$

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) $\frac{2ak}{k^2+1}$ (b) $\frac{2ak}{k^2-1}$ (c) $\frac{ak}{k^2+1}$ (d) $\frac{ak}{k^2-1}$

Q88 If $\frac{\sqrt{x+1}+\sqrt{x-1}}{\sqrt{x+1}-\sqrt{x-1}} = 3$, then find the value of x.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) $\frac{1}{2}$ (b) $\frac{5}{3}$ (c) $\frac{3}{4}$ (d) $\frac{7}{8}$

Q89 If x² + y² = 29 and x + y = 7, what is the value of (x - y)²?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 5 (b) 9 (c) 25 (d) 49

Q90 If $X = \sqrt{\frac{4+\sqrt{15}}{4-\sqrt{15}}}$, then what is the value of $X + \frac{1}{X}$?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 2 (b) 4 (c) 6 (d) 8

Q91 If $x + \frac{1}{x} = 11$, where x ≠ 0, what is the value of $x^3 + \frac{1}{x^3}$?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 1108 (b) 1298 (c) 1331 (d) 1492

Q92 If $a + b + c = 0$ and $abc = 24$, what is the value of $(a + b)(b + c)(c + a)$?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) -48 (b) -24 (c) 24 (d) 48

Q93 If $\frac{\sqrt{12+q}+\sqrt{12-q}}{\sqrt{12+q}-\sqrt{12-q}} = 3$, then find the value of q.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) $\frac{3}{4}$ (b) $\frac{1}{2}$ (c) $\frac{36}{5}$ (d) $\frac{56}{9}$

Q94 Find the value of $\sqrt{17 - 2\sqrt{72}} - \frac{1}{\sqrt{17-2\sqrt{72}}}$.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 0 (b) $\sqrt{2}$ (c) $-4\sqrt{2}$ (d) 1

Q95 Simplify the expression: $\sqrt{16 + 6\sqrt{2} + 6\sqrt{5} + 2\sqrt{10}}$

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) $\sqrt{2} + \sqrt{5} + 3$ (b) $\sqrt{2} + \sqrt{5} - 3$
(c) $\sqrt{2} - \sqrt{5} + 3$ (d) $\sqrt{2} - \sqrt{5} - 3$

Q96 If $(a+b)^2 = 196$ and $(a-b)^2 = 36$, find ab.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 32 (b) 160 (c) 40 (d) 80

Q97 What is the value of $(x + 2)^3 - (x - 2)^3$?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) $24x^2 + 18$ (b) $12x^2 + 16$ (c) $24x^2 - 16$ (d) $24x^2$

Q98 Find the value of $(3x + 2y)^2 - (3x - 2y)^2$.

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 12xy (b) 24xy (c) 6xy (d) 36xy

Q99 If $\frac{\sqrt{3+z}+\sqrt{3-z}}{\sqrt{3+z}-\sqrt{3-z}} = 2$, then find the value of z.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) $\frac{1}{2}$ (b) $\frac{3}{4}$ (c) $\frac{14}{5}$ (d) $\frac{12}{5}$

Q100 If $\frac{\sqrt{8+p}+\sqrt{8-p}}{\sqrt{8+p}-\sqrt{8-p}} = 7$, find the value of p.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) $\frac{1}{2}$ (b) $\frac{47}{56}$ (c) $\frac{56}{25}$ (d) $\frac{3}{4}$

ANSWER KEY · Mock Set 04

76 (c)	77 (c)	78 (d)	79 (b)	80 (b)
81 (a)	82 (c)	83 (b)	84 (d)	85 (b)
86 (c)	87 (a)	88 (b)	89 (b)	90 (d)
91 (b)	92 (b)	93 (c)	94 (c)	95 (a)
96 (c)	97 (b)	98 (b)	99 (d)	100 (c)

Mock Set 04 · Solutions

Answer · Explanation · Key facts

Q76 Ans (c)

23

$1 + x/121 = 144/121 \Rightarrow$ **x = 23**।

Q77 Ans (c)

550

$x^2 + 1/x^2 = 23^2 - 2 = 527 \Rightarrow 527 + 23 =$ **550**।

Q78 Ans (d)

38

$(\sqrt{10} + 3)(\sqrt{10} - 3) = 1 \Rightarrow X = \sqrt{10} + 3 \Rightarrow X + 1/X = 2\sqrt{10} \Rightarrow X^2 + 1/X^2 = 40 - 2 =$ **38**।

Q79 Ans (b)

446

$p^2 + q^2 + r^2 = 576 - 130 =$ **446**।

Q80 Ans (b)

8

$(x + 1/x)^2 = 62 + 2 = 64 \Rightarrow x + 1/x =$ **8**।

Q81 Ans (a)

15

$a^2 - b^2 = (a + b)(a - b) = 5 \times 3 =$ **15**।

Q82 Ans (c)

2

$x + y = 3, x - y = 1 \Rightarrow x = 2, y = 1 \Rightarrow xy =$ **2**।

Q83 Ans (b)

29

संख्याएँ n, ..., n + 6। अगली तीन: $(n + 7) + (n + 8) + (n + 9) = 3n + 24 = 93 \Rightarrow n = 23$।

मूल सात में सबसे बड़ी $= n + 6 =$ **29**।

Q84 Ans (d)

28

$4xy = (x + y)^2 - (x - y)^2 = 121 - 9 = 112 \Rightarrow xy =$ **28**।

Q85 Ans (b)

$\frac{80}{17}$

Componendo-dividendo: $\sqrt{(10 + y)}/\sqrt{(10 - y)} = 5/3 \Rightarrow (10 + y)/(10 - y) = 25/9 \Rightarrow 34y = 160 \Rightarrow$ **y = 80/17**।

Q86 Ans (c)

10016

$a^2 + b^2 = 144 - 40 = 104 \Rightarrow a^4 + b^4 = 104^2 - 2 \times 400 = 10816 - 800 =$ **10016**।

Q87 Ans (a)

$\frac{2ak}{k^2+1}$

$\sqrt{(a + x)}/\sqrt{(a - x)} = (k + 1)/(k - 1) \Rightarrow (a + x)/(a - x) = (k + 1)^2/(k - 1)^2$।

$x = a \times [(k + 1)^2 - (k - 1)^2]/[(k + 1)^2 + (k - 1)^2] = a \times 4k/(2k^2 + 2) =$ **2ak/(k² + 1)**।

Q88 Ans (b)

$\frac{5}{3}$

$\sqrt{(x + 1)}/\sqrt{(x - 1)} = 4/2 = 2 \Rightarrow x + 1 = 4x - 4 \Rightarrow$ **x = 5/3**।

Q89 **Ans (b)**

9

$(x - y)^2 = 2(x^2 + y^2) - (x + y)^2 = 58 - 49 = 9$।

Q90 **Ans (d)**

8

$(4 + \sqrt{15})(4 - \sqrt{15}) = 1 \Rightarrow X = 4 + \sqrt{15} \Rightarrow X + 1/X = 8$।

Q91 **Ans (b)**

1298

$x^3 + 1/x^3 = 11^3 - 3 \times 11 = 1331 - 33 = 1298$।

Q92 **Ans (b)**

-24

$a + b = -c$, $b + c = -a$, $c + a = -b \Rightarrow$ गुणनफल $= -abc = -24$।

Q93 **Ans (c)**

$\frac{36}{5}$

$\sqrt{(12 + q)}/\sqrt{(12 - q)} = 4/2 = 2 \Rightarrow 12 + q = 48 - 4q \Rightarrow q = 36/5$।

Q94 **Ans (c)**

$-4\sqrt{2}$

$17 - 2\sqrt{72} = (3 - 2\sqrt{2})^2 \Rightarrow \sqrt{(\ldots)} = 3 - 2\sqrt{2}$, व्युत्क्रम $= 3 + 2\sqrt{2} \Rightarrow$ अंतर $= -4\sqrt{2}$।

Q95 **Ans (a)**

$\sqrt{2} + \sqrt{5} + 3$

$(\sqrt{2} + \sqrt{5} + 3)^2 = 2 + 5 + 9 + 2\sqrt{10} + 6\sqrt{2} + 6\sqrt{5} = 16 + 6\sqrt{2} + 6\sqrt{5} + 2\sqrt{10} \Rightarrow \sqrt{2} + \sqrt{5} + 3$।

Q96 **Ans (c)**

40

$4ab = 196 - 36 = 160 \Rightarrow ab = 40$।

Q97 **Ans (b)**

$12x^2 + 16$

$(x + 2)^3 - (x - 2)^3 = 2(3x^2 \cdot 2 + 8) = 12x^2 + 16$।

Q98 **Ans (b)**

24xy

$4 \times 3x \times 2y = 24xy$।

Q99 **Ans (d)**

$\frac{12}{5}$

$\sqrt{(3 + z)}/\sqrt{(3 - z)} = 3/1 \Rightarrow 3 + z = 27 - 9z \Rightarrow z = 12/5$।

Q100 **Ans (c)**

$\frac{56}{25}$

$\sqrt{(8 + p)}/\sqrt{(8 - p)} = 8/6 = 4/3 \Rightarrow (8 + p)/(8 - p) = 16/9 \Rightarrow 25p = 56 \Rightarrow p = 56/25$।

Mock Set 05 Q101–Q121 · 5 Oct → 28 Oct

TOPIC · Algebra (5/5)

Q101 The square of a positive number exceeds twice the number by 8. What is the number?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 1 (b) 2 (c) 4 (d) 6

Q102 If p + q + r = 12 and pq + qr + rp = 47, what is the value of $p^2 + q^2 + r^2$?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 44 (b) 46 (c) 48 (d) 50

Q103 If $X = \frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}}$, then find the value of $X + \frac{1}{X}$.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 4 (b) 5 (c) 12 (d) 7

Q104 Which of the following is identically equal to $(m + n)^3 + (m - n)^3$?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $2m(m^2 + 3n^2)$ (b) $2m(3m^2 + n^2)$
(c) $2n(3m^2 + n^2)$ (d) $2(m^3 + n^3)$

Q105 What is the value of x if $(2x - y)^2 = 25$ and $y = 5$?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 5 (b) 10 (c) 25 (d) 15

Q106 If $x = 10 + 3\sqrt{11}$, what is the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)^2$?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 12 (b) 14 (c) 16 (d) 18

Q107 Using an algebraic identity, find the value of $\frac{105\times105-95\times95}{10}$.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 2 (b) 20 (c) 200 (d) 2000

Q108 If a - b = 13 and $a^2 - b^2 = 65$, what is the value of 2a + 2b?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 26 (b) 78 (c) 5 (d) 10

Q109 If $x^3 + y^3 + z^3 = 3xyz + 6$, and let $L = x - y - z$, $M = y - z - x$, $N = z - x - y$, then find the value of $L^3 + M^3 + N^3 - 3LMN$.

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) -24 (b) -18 (c) 24 (d) 18

Q110 Factorise: $x^3 + 8$

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) $(x + 2)(x^2 + 2x + 4)$ (b) $(x + 2)(x^2 - 2x + 4)$
(c) $(x - 2)(x^2 + 2x + 4)$ (d) $(x - 2)(x^2 - 2x + 4)$

Q111 What is the exact value of the expression $(8.35)^2 - (1.45)^2$?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 47.61 (b) 63.92 (c) 67.62 (d) 71.83

Q112 For what value of x is the statement $\left(\frac{x}{12}\right)\left(\frac{x}{48}\right) = 1$ true?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 34 (b) 36 (c) 24 (d) 26

Q113 If $x + \frac{1}{x} = 5$, then find the value of $\frac{x^2-1}{x}$.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) $\pm\sqrt{21}$ (b) $\pm\sqrt{31}$ (c) $\pm\sqrt{41}$ (d) $\pm\sqrt{51}$

Q114 If $p - q = 13$ and $pq = 27$, find $(p + q)^2$.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 40 (b) 168 (c) 277 (d) 312

Q115 Expand the following expression completely: $(\sqrt{5} + \sqrt{2})^3$

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $11\sqrt{5} + 13\sqrt{2}$ (b) $7\sqrt{5} + 17\sqrt{2}$
(c) $11\sqrt{5} + 17\sqrt{2}$ (d) $11\sqrt{5} + 15\sqrt{2}$

Q116 If $a + b + c = 0$ and $a^2 + b^2 + c^2 = 42$, what is the value of $(a + b)^4 + (b + c)^4 + (c + a)^4$?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 840 (b) 861 (c) 882 (d) 903

Q117 A designer is creating a square glass panel whose side length is $(3 + \sqrt{7})$ metres. Before ordering the glass, the designer needs to calculate the exact area of the panel. What is the area in simplified surd form?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $16 + 6\sqrt{7}$ m² m² (b) $16 + 3\sqrt{7}$ m² m²
(c) $9 + 7\sqrt{7}$ (d) $22 + 6\sqrt{7}$

TOPIC · Progression

Q118 The sum of cubes of first n natural number is 1296. Find the value of n

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 6 (b) 7 (c) 8 (d) 9

Q119 Pranay and Manisha are creating arithmetic sequences. They construct an arithmetic progression where the ratio of the first term to the common difference is 1:2. If they calculate the ratio of the sum of the first 4 terms (S_4) to the sum of the first 9 terms (S_9), what will be this ratio in its simplest form?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 21:83 (b) 16:81 (c) 14:45 (d) 4:9

Q120 The angles of a quadrilateral are in arithmetic progression. If the smallest angle measures 15°, find the largest angle in degrees.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 175° (b) 155° (c) 165° (d) 145°

Q121 Find the sum of cubes of first 10 odd natural numbers.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 21800 (b) 19900 (c) 24200 (d) 19800

ANSWER KEY · Mock Set 05

101 (c)	102 (d)	103 (c)	104 (a)	105 (a)
106 (d)	107 (c)	108 (d)	109 (a)	110 (b)
111 (c)	112 (c)	113 (a)	114 (c)	115 (c)
116 (c)	117 (a)	118 (c)	119 (b)	120 (c)
121 (b)				

Mock Set 05 · Solutions

Answer · Explanation · Key facts

Q101 Ans (c)

4

$n^2 - 2n = 8 \Rightarrow (n - 4)(n + 2) = 0 \Rightarrow$ **n = 4**।

Q102 Ans (d)

50

$p^2 + q^2 + r^2 = 144 - 94 =$ **50**।

Q103 **Ans (c)**

12

X = (√7 + √5)/(√7 − √5) = (√7 + √5)²/2 = 6 + √35 ⇒ 1/X = 6 − √35 ⇒ X + 1/X = **12**।

Q104 **Ans (a)**

$2m(m^2 + 3n^2)$

(m + n)³ + (m − n)³ = 2(m³ + 3mn²) = **2m(m² + 3n²)**।

Q105 **Ans (a)**

5

(2x − 5)² = 25 ⇒ 2x − 5 = ±5 ⇒ x = 5 (या 0) ⇒ विकल्प में **5**।

Q106 **Ans (d)**

18

(√x − 1/√x)² = x + 1/x − 2। x = 10 + 3√11 ⇒ 1/x = 10 − 3√11 ⇒ 20 − 2 = **18**।

Q107 **Ans (c)**

200

(105² − 95²)/10 = (10 × 200)/10 = **200**।

Q108 **Ans (d)**

10

a + b = 65/13 = 5 ⇒ 2a + 2b = **10**।

Q109 **Ans (a)**

−24

L + M + N = −(x + y + z); L − M = 2(x − y), M − N = 2(y − z), N − L = 2(z − x)।

L³ + M³ + N³ − 3LMN = (L + M + N) × ½Σ(L − M)² = −(x + y + z) × 4 × ½Σ(x − y)² = −4(x³ + y³ + z³ − 3xyz) = −4 × 6 = **−24**।

Q110 **Ans (b)**

(x + 2)(x² − 2x + 4)

a³ + b³ = (a + b)(a² − ab + b²) ⇒ x³ + 8 = **(x + 2)(x² − 2x + 4)**।

Q111 **Ans (c)**

67.62

(8.35 − 1.45)(8.35 + 1.45) = 6.9 × 9.8 = **67.62**।

Q112 **Ans (c)**

24

x²/(12 × 48) = 1 ⇒ x² = 576 ⇒ **x = 24**।

Q113 **Ans (a)**

$\pm\sqrt{21}$

(x² − 1)/x = x − 1/x = ±√(25 − 4) = **±√21**।

Q114 **Ans (c)**

277

(p + q)² = 169 + 108 = **277**।

Q115 **Ans (c)**

$11\sqrt{5} + 17\sqrt{2}$

(√5 + √2)³ = 5√5 + 3·5·√2 + 3·√5·2 + 2√2 = **11√5 + 17√2**।

Q116 **Ans (c)**

882

a + b = −c आदि ⇒ योग = a⁴ + b⁴ + c⁴। a + b + c = 0 हो तो a⁴ + b⁴ + c⁴ = (a² + b² + c²)²/2 = 1764/2 = **882**।

Q117 **Ans (a)**

$16 + 6\sqrt{7}$ **m² m²**

(3 + √7)² = 9 + 7 + 6√7 = **16 + 6√7 m²**।

Q118 **Ans (c)**

8

[n(n + 1)/2]² = 1296 ⇒ n(n + 1)/2 = 36 ⇒ **n = 8**।

Q119 **Ans (b)**

16:81

a = 1, d = 2 ⇒ S_4 = 2(2 + 6) = 16; S_9 = 4.5(2 + 16) = 81 ⇒ **16 : 81**।

Q120 **Ans (c)**

165°

कोण 15, 15 + d, 15 + 2d, 15 + 3d ⇒ 60 + 6d = 360 ⇒ d = 50 ⇒ सबसे बड़ा = **165°**।

Q121 **Ans (b)**

19900

पहले n विषम संख्याओं के घनों का योग = n²(2n² − 1) = 100 × 199 = **19900**।

CHAPTER 15

Sets, Relations & Functions

Sets · Relations · Functions

10	1	1	2
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Sets, Relations & Functions

01 Countable sets
$\mathbb{N}$, $\mathbb{Z}$, $\mathbb{Q}$, algebraic numbers — सब countable; $\mathbb{R}$ और power set of $\mathbb{N}$ uncountable।

02 Density
$\mathbb{Q}$ और irrationals दोनों $\mathbb{R}$ में dense हैं।

Mock Set 01 Q1–Q10 · 9 Oct → 24 Oct

TOPIC · Set Relation and Function

Q1 Which of the following sets has cardinality strictly between |N| and |R| under the assumption that the Continuum Hypothesis (CH) holds?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) The set of all algebraic numbers.
(b) The set of all functions from N to {0, 1}.
(c) The power set of Q.
(d) No such set exists under CH.

Q2 Which of the following is a correct statement about the Cantor set C ⊂ [0, 1]?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) C is countable and has measure 1
(b) C is uncountable and has measure 0
(c) C is countable and has measure 0
(d) C is uncountable and has measure 1/3

Q3 Let A = {all finite subsets of $\mathbb{N}$} and B = {all infinite subsets of $\mathbb{N}$}. Which is correct?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) $|A| = \aleph_0,\ |B| = \aleph_0$
(b) $|A| = \aleph_0,\ |B| = 2^{\aleph_0}$
(c) $|A| = 2^{\aleph_0},\ |B| = 2^{\aleph_0}$
(d) $|A| = \aleph_1,\ |B| = 2^{\aleph_0}$

Q4 Let f : Q → Q be a field automorphism. How many such automorphisms exist?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) Uncountably many
(b) Exactly 2 (identity and negation)
(c) Exactly 1 (the identity)
(d) Countably infinitely many

Q5 The set of computable real numbers is:

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) Equal to R
(b) Equal to Q
(c) A countable dense subfield of R
(d) An uncountable proper subset of R

Q6 If Q is dense in R and R \ Q (the irrationals) is also dense in R, which conclusion follows directly from the density of the irrationals in R?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) Between any two irrationals there is no rational.
(b) Every open interval in R contains uncountably many irrationals and countably many rational numbers.
(c) The closure of R \ Q in R is R itself.
(d) Q and R \ Q have the same cardinality.

Q7 **The algebraic numbers A form a subfield of C. What is the cardinality of A?**

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) Finite.
(b) Countably infinite.
(c) Uncountably infinite, same cardinality as R.
(d) Strictly between |N| and |R|.

Q8 **Consider the field extension (Q(√2, √3)/Q). Its degree [Q(√2, √3) : Q] equals:**

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 2 (b) 3 (c) 4 (d) 8

Q9 **In the real number system, the Archimedean property states: for any x ∈ R, there exists n ∈ N such that:**

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) n < x
(b) n > x
(c) n = x
(d) n ≤ x and n ≥ x simultaneously

Q10 **Let S = {x ∈ R : x² ∈ Q}. Which of the following best describes S?**

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) S = Q
(b) S is countable and properly contains Q
(c) S = R
(d) S is a subfield of R

ANSWER KEY · Mock Set 01

1 (d)	2 (b)	3 (b)	4 (c)	5 (c)
6 (c)	7 (b)	8 (c)	9 (b)	10 (b)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (d)**

No such set exists under CH.

Continuum Hypothesis कहती है कि ऐसा कोई set नहीं जिसकी cardinality |ℕ| = ℵ₀ और |ℝ| = 2^ℵ₀ के बीच हो। Algebraic numbers countable हैं; बाकी दो विकल्पों की cardinality |ℝ| के बराबर है।

इसलिए **CH के तहत ऐसा कोई set नहीं**।

Q2 **Ans (b)**

C is uncountable and has measure 0

Cantor set हर चरण में बीच का 1/3 हटाकर बनता है। हटाई गई कुल लंबाई = 1/3 + 2/9 + 4/27 + … = 1 ⇒ **measure 0**।

फिर भी इसके बिंदु ternary (0, 2 अंकों वाले) प्रसार से [0, 1] के साथ एक-एक मेल रखते हैं ⇒ **uncountable**।

Q3 **Ans (b)**

$$|A| = \aleph_0,\ |B| = 2^{\aleph_0}$$

ℕ के finite subsets countable हैं (|A| = ℵ₀)। ℕ के सभी subsets = 2^ℵ₀, उसमें से countable भाग हटाने पर भी **|B| = 2^ℵ₀**।

Q4 **Ans (c)**

Exactly 1 (the identity)

Field automorphism में f(1) = 1 ⇒ f(n) = n ⇒ f(p/q) = p/q। इसलिए ℚ का **केवल identity automorphism** होता है।

Q5 **Ans (c)**

A countable dense subfield of R

Computable reals countable हैं (हर एक के लिए एक program), ℚ ⊂ उनमें, और वे जोड़-गुणा-भाग में बंद हैं ⇒ **countable dense subfield of ℝ**।

Q6 **Ans (c)**

The closure of R \ Q in R is R itself.

Irrationals ℝ में dense हैं ⇒ हर real बिंदु के पास irrationals मिलते हैं ⇒ **ℝ \ ℚ का closure = ℝ**।

Q7 **Ans (b)**

Countably infinite.

हर algebraic number पूर्णांक गुणांक वाले किसी polynomial का मूल है; polynomials countable हैं और हर एक के मूल सीमित हैं ⇒ **countably infinite**।

Q8 **Ans (c)**

आकृति 4

[ℚ(√2) : ℚ] = 2 और √3 ∉ ℚ(√2) ⇒ [ℚ(√2, √3) : ℚ(√2)] = 2 ⇒ कुल degree = 2 × 2 = **4**।

Q9 **Ans (b)**

n > x

Archimedean property: किसी भी real x के लिए एक natural n ऐसा है कि **n > x**।

Q10 **Ans (b)**

S is countable and properly contains Q

$S = \{x : x^2 \in \mathbb{Q}\} = \{\pm\sqrt{q} : q \geq 0 \text{ rational}\}$। इसमें $\mathbb{Q}$ है और $\sqrt{2}$ जैसी संख्याएँ भी, फिर भी यह countable है ⇒ **S countable है और $\mathbb{Q}$ को properly contain करता है** (subfield नहीं, क्योंकि $\sqrt{2} + \sqrt{3} \notin S$)।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 16

Geometry

Triangles · Centres · Circles · Quadrilaterals · Polygons

184	1	7	6
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Geometry

01 Tangent के कोण
Minor arc पर बिंदु का कोण = 180 − θ/2; tangents के बीच का कोण = 180 − θ (θ = केंद्रीय कोण)।

02 Common tangents
Direct = $\sqrt{(d^2 - (r_1 - r_2)^2)}$, Transverse = $\sqrt{(d^2 - (r_1 + r_2)^2)}$।

03 Chord
दूरी² + (आधी chord)² = r²; बराबर chords केंद्र से बराबर दूरी पर।

04 Centres
Centroid 2 : 1; ∠BIC = 90 + A/2; orthocenter पर ∠BHC = 180 − A।

05 Polygon
बाह्य कोण = 360/n; अंतः = 180 − 360/n; diagonals = n(n − 3)/2।

06 AD × AC = AB × AE
इसका अर्थ DE ∥ BC ⇒ ∠ADE = ∠B।

Mock Set 01 Q1–Q25 · 30 Sep → 1 Oct

TOPIC · Geometry (1/7)

Q1 In △ABC, a line DE is drawn parallel to BC, intersecting AB at D and AC at E. If AD = 3 cm, DB = 2 cm, and DE = 4 cm, what is the length of BC?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 5 cm (b) 6 cm (c) $\frac{3}{20}$ cm (d) $\frac{20}{3}$ cm

Q2 In a circle of radius 61 cm, two equal parallel chords lie on opposite sides of the centre. The distance between the chords is 22 cm. Find the length of each chord.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 30 cm (b) 60 cm (c) 90 cm (d) 120 cm

Q3 A tangent is drawn from external point Q to a circle having a centre O, touching at T. OT = 6 cm and OQ = 10 cm. What is the area of triangle OTQ?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 14 cm² (b) 18 cm² (c) 24 cm² (d) 28 cm²

Q4 Two circles with radii 5 cm and 3 cm have their centers separated by a distance of d cm. If the length of their direct common tangent is exactly twice the length of their transverse common tangent, find the value of d^2.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 84 cm (b) 79 cm (c) 51 cm (d) 105 cm

Q5 A chord of a circle subtends an angle of 60° at the center. If the radius of the circle is 10 cm, find the length of the chord.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 5 cm (b) 10 cm (c) 15 cm (d) 20 cm

Q6 In triangle ABC, points D and E lie on side BC such that AD = AE and ∠BAD = ∠EAC. If AB = (3x + 1) cm, BD = 9 cm, AC = 34 cm, and EC = (y + 1) cm, then find the value of (x + y).

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 11 (b) 12 (c) 16 (d) 19

Q7 Two circles of radii 25 cm and 17 cm intersect such that the length of their common chord is 30 cm. Find the distance between the centers of the two circles, given that the centers lie on opposite sides of the chord.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 12 cm (b) 21 cm (c) 24 cm (d) 28 cm

Q8 The sides of a triangle are 7 cm, 24 cm, and 25 cm. What is the length of the altitude corresponding to the longest side?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 5.6 cm (b) 6.72 cm (c) 8.4 cm (d) 9.6 cm

Q9 Two complementary angles add up to 90°. If one angle is 18° less than the other, find the angles.

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 36°, 54° (b) 28°, 62° (c) 40°, 50° (d) 45°, 45°

Q10 In △XYZ, let M be the midpoint of side XY. If the length of the median ZM is 9 cm and G is the centroid, what is the length of segment GM?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 1 cm (b) 7 cm (c) 9 cm (d) 3 cm

Q11 A circle has a diameter of 20 cm. Two equal chords AB and CD are parallel. BC is a diameter of the circle. If chord AB is 6 cm away from the centre, find the length of chord CD (in cm).

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 8 cm (b) 16 cm (c) 24 cm (d) 32 cm

Q12 A tangent is drawn to a circle of radius 55 cm at point A. A chord BC is parallel to this tangent. If the perpendicular distance from centre O to chord BC is 33 cm, what is the length of chord BC?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 74 cm (b) 85 cm (c) 88 cm (d) 96 cm

Q13 Two identical circles, each of radius r, are placed such that the distance between their centers is d. What is the ratio of the length of their direct common tangent segment to the distance between their centers?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 1 : 1 (b) r : d (c) $\sqrt{\frac{d^2}{4r^2}} : d$ (d) 2d : r

Q14 What is the ratio of the sum of interior angles of a regular 7-sided polygon (heptagon) to that of a regular 9-sided polygon (nonagon)?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 5 : 7 (b) 6 : 7 (c) 5 : 8 (d) 8 : 5

Q15 In △PQR, the medians intersect at centroid G. If the segment PG (from vertex to centroid) is 15 cm, what is the length of segment GD (from centroid to the midpoint of QR)?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 5 cm (b) 7.5 cm (c) 10 cm (d) 12.1 cm

Q16 Two regular polygons have a number of sides in the ratio 1 : 4, and the difference between their exterior angles is 9°. What are the numbers of sides of these polygons?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 30 sides and 110 sides (b) 23 sides and 120 sides
(c) 21 sides and 110 sides (d) 30 sides and 120 sides

Q17 In triangle ABC, the angles are ∠B = 50° and ∠C = 70°, which of the following option is correct?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) BC < AC (b) AB < BC (c) AB < AC (d) BC > AC

Q18 In triangle △ABC, AD and BE are altitudes such that AD ⊥ BC and BE ⊥ AC. The altitudes intersect at point F. If the length of CF is equal to the length of AB, determine the measure of ∠ACB.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 30° (b) 45° (c) 60° (d) 75°

Q19 Congruent triangles are joined to form a six-sided polygon in which all sides are equal and each interior angle is obtuse. How would you classify this polygon?

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) Regular octagon (b) Regular decagon
(c) Regular hexagon (d) Regular pentagon

Q20 If in a circle with center O, two chords PQ & RS are equal such that ∠POQ = 70° & ∠ORS = p°. Calculate 3p° - 50°.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 105° (b) 115° (c) 125° (d) 135°

Q21 In △PQR, I is a point which is equidistant from all the sides of a Δ. If ∠PRQ = 30°, then find ∠QIR + ∠PIR.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 275° (b) 225° (c) 295° (d) 255°

Q22 In a circle, chord AB subtends an angle of 42° at point P on the circumference. Find the angle subtended by the same chord at another point Q lying on the same segment.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 21° (b) 42° (c) 69° (d) 111°

Q23 In two congruent right-angled triangles ABC and PQR, angles A and P are 90°. If BC = 15 cm and PR = 9 cm, find AB.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 15 cm (b) 12 cm (c) 9 cm (d) 6 cm

Q24 Two circles of radii 13 cm and 15 cm intersect, and the distance between their centers is 14 cm. Find the length of their common chord.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 5 cm (b) 12 cm (c) 17 cm (d) 24 cm

Q25 Two circles have radii 8 cm and 5 cm. If the length of their transverse common tangent is 16 cm, find the distance between their centers (in cm).

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) $5\sqrt{17}$ cm (b) $7\sqrt{13}$ cm (c) 9 cm (d) 18 cm

ANSWER KEY · Mock Set 01

1 (d)	2 (d)	3 (c)	4 (a)	5 (b)
6 (d)	7 (d)	8 (b)	9 (a)	10 (d)
11 (b)	12 (c)	13 (a)	14 (a)	15 (b)
16 (d)	17 (d)	18 (b)	19 (c)	20 (b)
21 (d)	22 (b)	23 (b)	24 (d)	25 (a)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (d)

$\frac{20}{3}$ cm

DE ∥ BC ⇒ △ADE ~ △ABC (BPT)। AD/AB = DE/BC ⇒ 3/5 = 4/BC ⇒ **BC = 20/3 cm**।

Q2 Ans (d)

120 cm

समान chords केंद्र से बराबर दूरी पर ⇒ हर एक 11 cm दूर।
आधी chord = √(61² - 11²) = √3600 = 60 ⇒ chord = **120 cm**।

Q3 Ans (c)

24 cm²

OT ⊥ QT ⇒ QT = √(10² - 6²) = 8। क्षेत्रफल = ½ × 6 × 8 = **24 cm²**।

Q4 Ans (a)

84 cm

Direct tangent = √(d² - 4), Transverse = √(d² - 64)। √(d² - 4) = 2√(d² - 64) ⇒ d² - 4 = 4d² - 256।
3d² = 252 ⇒ **d² = 84**।

Q5 Ans (b)

10 cm

केंद्र पर 60° ⇒ त्रिभुज समबाहु ⇒ chord = radius = **10 cm**।

Q6 Ans (d)

19

AD = AE ⇒ ∠ADE = ∠AED ⇒ ∠ADB = ∠AEC; साथ में ∠BAD = ∠EAC ⇒ △ABD ≅ △ACE ⇒ AB = AC, BD = EC।
3x + 1 = 34 ⇒ x = 11; y + 1 = 9 ⇒ y = 8 ⇒ x + y = **19**।

Q7 Ans (d)

28 cm

आधी chord = 15। केंद्रों की chord से दूरी: √(25² - 15²) = 20 और √(17² - 15²) = 8।
केंद्र विपरीत ओर ⇒ दूरी = 20 + 8 = **28 cm**।

Q8 Ans (b)

6.72 cm

7² + 24² = 25² ⇒ समकोण त्रिभुज। कर्ण पर ऊँचाई = (7 × 24)/25 = **6.72 cm**।

Q9 **Ans (a)**

36°, 54°

x + (x - 18) = 90 ⇒ x = 54 ⇒ कोण **36°, 54°**।

Q10 **Ans (d)**

3 cm

Centroid median को 2 : 1 में बाँटता है ⇒ GM = 9/3 = **3 cm**।

Q11 **Ans (b)**

16 cm

AB और CD बराबर व समानांतर, BC व्यास ⇒ दोनों केंद्र से 6 cm दूर।
CD = 2√(10² - 6²) = 2 × 8 = **16 cm**।

Q12 **Ans (c)**

88 cm

BC = 2√(55² - 33²) = 2√1936 = 2 × 44 = **88 cm**।

Q13 **Ans (a)**

1 : 1

बराबर त्रिज्या ⇒ direct tangent = √(d² - (r - r)²) = d ⇒ अनुपात **1 : 1**।

Q14 **Ans (a)**

5 : 7

(7 - 2) × 180 : (9 - 2) × 180 = 900 : 1260 = **5 : 7**।

Q15 **Ans (b)**

7.5 cm

PG : GD = 2 : 1 ⇒ GD = 15/2 = **7.5 cm**।

Q16 **Ans (d)**

30 sides and 120 sides

भुजाएँ n और 4n ⇒ 360/n - 360/(4n) = 270/n = 9 ⇒ n = 30 ⇒ **30 और 120 भुजाएँ**।

Q17 **Ans (d)**

BC > AC

∠A = 180 - 50 - 70 = 60°। बड़े कोण के सामने बड़ी भुजा: BC (∠A = 60°) > AC (∠B = 50°) ⇒ **BC > AC**।

Q18 **Ans (b)**

45°

F orthocenter है: CF = 2R cos C और AB = 2R sin C। CF = AB ⇒ tan C = 1 ⇒ **∠ACB = 45°**।

Q19 **Ans (c)**

Regular hexagon

छह बराबर भुजाएँ और हर अंतः कोण obtuse (120°) ⇒ **Regular hexagon**।

Q20 **Ans (b)**

115°

बराबर chords ⇒ ∠ROS = ∠POQ = 70°। △ORS समद्विबाहु ⇒ p = (180 - 70)/2 = 55।
3p - 50 = 165 - 50 = **115°**।

Q21 **Ans (d)**

255°

I incentre है ⇒ ∠QIR = 90 + P/2, ∠PIR = 90 + Q/2।
योग = 180 + (P + Q)/2 = 180 + 150/2 = **255°**।

Q22 **Ans (b)**

42°

एक ही segment के कोण बराबर ⇒ **42°**।

Q23 **Ans (b)**

12 cm

सर्वांगसम ⇒ BC = QR = 15 (कर्ण), AC = PR = 9 ⇒ AB = √(225 - 81) = **12 cm**।

Q24 **Ans (d)**

24 cm

केंद्रों और प्रतिच्छेद बिंदु से बना त्रिभुज 13, 14, 15 ⇒ क्षेत्रफल = 84।
14 पर ऊँचाई = 2 × 84/14 = 12 ⇒ common chord = 2 × 12 = **24 cm**।

Q25 **Ans (a)**

$5\sqrt{17}$ cm

Transverse tangent = √(d² - (8 + 5)²) = 16 ⇒ d² = 256 + 169 = 425 ⇒ **d = 5√17 cm**।

Mock Set 02 Q26–Q50 · 5 Oct → 7 Oct

TOPIC · Geometry (2/7)

Q26 **P, S, and Q are three points on a circle such that the angles subtended by the chords PS and SQ at the centre O are 85° and 115°, respectively. Determine ∠PSQ.**

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 50° (b) 80° (c) 110° (d) 120°

Q27 In triangle ABC, points D and E lie on AB and AC, respectively, such that AD × AC = AB × AE. If ∠ADE = ∠ACB + 15° and ∠ABC = 65°, find ∠A.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 55° (b) 50° (c) 65° (d) 60°

Q28 Two circles are positioned such that the distance between their centers is 41 cm. The length of their transverse common tangent segment is 40 cm. If the radius of one circle is 6 cm, find the radius of the other circle.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 1 cm (b) 3 cm (c) 5 cm (d) 4 cm

Q29 In a cyclic quadrilateral ABCD, ∠A = (4x + 20)° and ∠C = (3x − 15)°. Find the value of x.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 18 (b) 21 (c) 27 (d) 25

Q30 In triangle ABC, let D be any point on side AC. Points P, Q, X, and Y are the midpoints of AB, BC, AD, and DC, respectively. What is the ratio of the lengths PX and QY?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 2:3 (b) 1:1 (c) 1:2 (d) 3:2

Q31 The circumference of a circle is 100π cm. A chord in this circle has a length of 60 cm. What is the distance of this chord from the centre?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 20 cm (b) 40 cm (c) 60 cm (d) 80 cm

Q32 AT is a tangent to a circle at A, and ABC is an inscribed triangle with BC as a chord. If the angle between the tangent and chord AC is ∠CAT = 50°, what is the inscribed angle ∠ABC?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 30° (b) 50° (c) 70° (d) 90°

Q33 Two circles of radii 6 cm and 4 cm have their centres 20 cm apart. The transverse common tangent intersects the line joining the centres at point P. Find the distance of P from the centre of the larger circle.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 8 cm (b) 10 cm (c) 12 cm (d) 14 cm

Q34 Consider an arbitrary triangle ABC. Which of the following statements about its centers is always true, regardless of the type of triangle (e.g., equilateral, isosceles, right-angled, scalene)?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) The incenter, circumcenter, centroid, and orthocenter all coincide.
(b) The orthocenter is always located inside the triangle.
(c) The incenter is equidistant from all sides of the triangle.
(d) The circumcenter is equidistant from all vertices of the triangle and is always inside the triangle.

Q35 In a circular pavilion, a support beam acts as a chord connecting two columns. The chord is 20 m, and the height from the chord to the top of the arc is 5 m. Find the radius of the circular roof.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 13 m (b) 14 m (c) 12.5 m (d) 16 m

Q36 In △ABC, the medians AD, BE, and CF intersect at the centroid G. If the length of median AD is 12 cm, what is the length of the segment GD?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 1 cm (b) 2.5 cm (c) 4 cm (d) 6.1 cm

Q37 The measure of supplement of ∠p is 60° more than four times the measure of complement of ∠p. Find the sum in degree of the supplement and complement of ∠p.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 110° (b) 170° (c) 180° (d) 140°

Q38 Triangles XYZ and PQR are similar. In △XYZ, the side lengths are XY = 10 cm, YZ = 15 cm, and ZX = 20 cm. If the ratio of the areas of △XYZ and △PQR is 25: 36, what is the length of side QR in △PQR?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 12 cm (b) 14 cm (c) 18 cm (d) 20 cm

Q39 In △XYZ, G is the centroid and ZM is a median. If the segment GZ is 6 cm, what is the total length of the median ZM?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 9 cm (b) 5 cm (c) 2 cm (d) 10 cm

Q40 Two equal parallel chords of a circle lie on opposite sides of the centre. The perpendicular distance between the chords is 6 cm. If the radius of the circle is 5 cm, find the length of each chord (in cm).

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 8 cm (b) 10 cm (c) 12 cm (d) 16 cm

Q41 If the angle between two tangents drawn from a point P to a circle of radius 3 cm is 60°, what is the length of each tangent?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) $3\sqrt{3}$ cm (b) 5 cm (c) $4\sqrt{2}$ cm (d) 7 cm

Q42 Two circles with radii 6 cm and 3 cm have their centers 15 cm apart. How many common tangents can be drawn to these circles?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 2 (b) 4 (c) 1 (d) 5

Q43 A chord of a circle is 25.4 cm long. Determine the radius of the circle.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) $r \geq 12.7$ cm (b) $r \leq 12.7$ cm (c) $r > 12.7$ cm (d) $r =$

Q44 Two triangles, ABC and PQR, are congruent right-angled triangles where angle A and angle P are each 90°. If the hypotenuse BC measures 13 cm and side PR measures 5 cm, determine the length of side AB.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 8 cm (b) 6 cm (c) 12 cm (d) 10 cm

Q45 A chord of a circle measures 40 cm and is 15 cm away from the centre. What will be the length of another chord of the same circle that is 20 cm away from the centre?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 15 cm (b) 30 cm (c) 45 cm (d) 60 cm

Q46 In a polygon, the largest angle is 12° more than the average of all its interior angles. If the largest angle measures 4/3 of a right angle, find the number of sides of the polygon.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 8 (b) 7 (c) 6 (d) 5

Q47 What is the inradius of an equilateral triangle with a side length of 6 cm?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 1.11 cm (b) 1.73 cm (c) 3.37 cm (d) 2.21 cm

Q48 In a circle with centre O, PQ is a chord, and T lies on the minor arc PQ. Tangents at points P and Q meet at point A. If ∠PTQ = 160°, then what is the measure of ∠PAQ?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 40° (b) 70° (c) 100° (d) 140°

Q49 If △ABC ≅ △ PQR and ∠ABC = (x + 60)°, ∠PQR = (85 - 4x)°, and ∠RPQ = (3x + 65)°, then what is the value of ∠ABC (in degrees)?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 45° (b) 65° (c) 25° (d) 55°

Q50 In △ABC, the internal bisector of ∠A meets BC at D. A point E lies on AC such that DE ∥ AB. If the length of AB = c, AC = b, and BC = a, determine the ratio of the area of △CDE to the area of △ABC in terms of b and c.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\left(\frac{c}{b+c}\right)^2$ (b) $\left(\frac{b}{b+c}\right)^2$ (c) $\frac{b}{b+c}$ (d) $\frac{c}{b+c}$

ANSWER KEY · Mock Set 02

26 (b)	27 (c)	28 (b)	29 (d)	30 (b)
31 (b)	32 (b)	33 (c)	34 (c)	35 (c)
36 (c)	37 (a)	38 (c)	39 (a)	40 (a)
41 (a)	42 (b)	43 (a)	44 (c)	45 (b)
46 (d)	47 (b)	48 (d)	49 (b)	50 (b)

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (b)

80°

∠POQ (S से होकर) = 85 + 115 = 200° ⇒ S वाले चाप के बाहर का चाप PQ = 160°।

∠PSQ = 160/2 = **80°**।

Q27 Ans (c)

65°

AD × AC = AB × AE ⇒ AD/AB = AE/AC ⇒ DE ∥ BC ⇒ ∠ADE = ∠ABC = 65°।

65 = ∠C + 15 ⇒ ∠C = 50 ⇒ ∠A = 180 - 65 - 50 = **65°**।

Q28 Ans (b)

3 cm

$40^2 = 41^2 - (6 + r)^2 \Rightarrow (6 + r)^2 = 81 \Rightarrow$ **r = 3 cm**।

Q29 **Ans (d)**

25

चक्रीय चतुर्भुज में ∠A + ∠C = 180 ⇒ 7x + 5 = 180 ⇒ **x = 25**।

Q30 **Ans (b)**

1:1

Midpoint theorem: PX = BD/2 (△ABD में), QY = BD/2 (△CBD में) ⇒ **1 : 1**।

Q31 **Ans (b)**

40 cm

r = 50 ⇒ दूरी = √(50² - 30²) = **40 cm**।

Q32 **Ans (b)**

50°

Alternate segment theorem: tangent-chord कोण = एकांतर segment का कोण ⇒ ∠ABC = **50°**।

Q33 **Ans (c)**

12 cm

Transverse tangent केंद्रों को त्रिज्याओं के अनुपात 6 : 4 में बाँटता है ⇒ बड़े केंद्र से = 20 × 6/10 = **12 cm**।

Q34 **Ans (c)**

The incenter is equidistant from all sides of the triangle.

Incentre हर त्रिभुज में तीनों भुजाओं से समान दूरी पर होता है। (Orthocenter/circumcenter हमेशा अंदर नहीं होते।) ⇒ विकल्प **(c)**।

Q35 **Ans (c)**

12.5 m

(r - 5)² + 10² = r² ⇒ -10r + 125 = 0 ⇒ **r = 12.5 m**।

Q36 **Ans (c)**

4 cm

GD = AD/3 = **4 cm**।

Q37 **Ans (a)**

110°

180 - p = 4(90 - p) + 60 ⇒ 3p = 240 ⇒ p = 80।
Supplement + complement = 100 + 10 = **110°**।

Q38 **Ans (c)**

18 cm

क्षेत्रफल अनुपात 25 : 36 ⇒ भुजा अनुपात 5 : 6 ⇒ QR = 15 × 6/5 = **18 cm**।

Q39 **Ans (a)**

9 cm

GZ = 2/3 ZM ⇒ ZM = 6 × 3/2 = **9 cm**।

Q40 **Ans (a)**

8 cm

हर chord केंद्र से 3 cm दूर ⇒ आधी chord = √(25 - 9) = 4 ⇒ **8 cm**।

Q41 **Ans (a)**

$3\sqrt{3}$ **cm**

केंद्र से P तक की रेखा 60° कोण को आधा करती है ⇒ tan 30° = 3/PT ⇒ PT = **3√3 cm**।

Q42 **Ans (b)**

4

d = 15 > 6 + 3 ⇒ वृत्त बिल्कुल अलग ⇒ **4** common tangents।

Q43 **Ans (a)**

$r \geq 12.7$ **cm**

सबसे बड़ी chord व्यास होती है ⇒ 2r ≥ 25.4 ⇒ **r ≥ 12.7 cm**।

Q44 **Ans (c)**

12 cm

BC = QR = 13, PR = AC = 5 ⇒ AB = √(169 - 25) = **12 cm**।

Q45 **Ans (b)**

30 cm

r² = 20² + 15² = 625 ⇒ r = 25। 20 cm दूर chord = 2√(625 - 400) = **30 cm**।

Q46 **Ans (d)**

5

सबसे बड़ा कोण = 4/3 × 90 = 120° ⇒ औसत = 108° = (n - 2) × 180/n ⇒ **n = 5**।

Q47 **Ans (b)**

1.73 cm

Inradius = a/(2√3) = 6/(2√3) = √3 ≈ **1.73 cm**।

Q48 **Ans (d)**

140°

Minor arc पर कोण = 180 - θ/2 = 160 ⇒ θ (केंद्रीय कोण) = 40°।
∠PAQ = 180 - 40 = **140°**।

Q49 **Ans (b)**

65°

सर्वांगसम ⇒ ∠ABC = ∠PQR ⇒ x + 60 = 85 − 4x ⇒ x = 5 ⇒ ∠ABC = **65°**।

Q50 **Ans (b)**

$\left(\frac{b}{b+c}\right)^2$

Angle bisector: BD/DC = c/b ⇒ CD/CB = b/(b + c)। DE ∥ AB ⇒ △CDE ~ △CBA।

क्षेत्रफल अनुपात = **(b/(b + c))²**।

Mock Set 03 Q51–Q75 · 7 Oct → 9 Oct

TOPIC · Geometry (3/7)

Q51 Two circles have radii of 10 cm and 4 cm, with the distance between their centers measuring 17 cm. Calculate the length of their transverse common tangent in centimeters.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\sqrt{83}$ cm (b) $\sqrt{93}$ cm (c) 15 cm (d) 20 cm

Q52 A circle has a radius of 13 cm. A tangent from an external point P has a length of 84 cm. The distance from the center of the circle to P is:

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 85 cm (b) 83 cm (c) 97 cm (d) 90 cm

Q53 In a circle with centre O, AB is a chord, and C lies on the minor arc AB. Tangents at points A and B meet at point P. If ∠ACB = 120°, then what is the measure of ∠APB?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 30° (b) 45° (c) 60° (d) 120°

Q54 In triangle ABC, points D and E lie on sides AB and AC, respectively, such that AD × AC = AB × AE. If ∠ABC = 75° and ∠ADE exceeds ∠ACB by 25°, determine the measure of ∠A.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 50° (b) 45° (c) 55° (d) 60°

Q55 Three circles with non-collinear centers lie in a plane such that each circle touches the other two externally. How many common tangents can be drawn that touch at least two of these circles simultaneously?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 9 (b) 3 (c) 12 (d) 6

Q56 What is the ratio of the interior angle to the exterior angle of a regular octagon?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 2 : 3 (b) 3 : 4 (c) 3 : 1 (d) 3 : 2

Q57 A triangle ABC is inscribed in a semicircle with diameter AB. If ∠BAC = 50°, what is the measure of ∠ABC?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 40° (b) 50° (c) 90° (d) 130°

Q58 A triangle has an incenter with coordinates (2,3). If the side opposite to vertex A is 'a', which of the following statements about the incenter is correct?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) The distance from the incenter to vertex A is 2 units.
(b) The distance from the incenter to side 'a' is 2 units.
(c) The incenter is equidistant from all three sides.
(d) The incenter is equidistant from all three vertices.

Q59 A circle has diameter AB and a chord AC, forming triangle ABC on the circumference. If AB is the diameter, what is the measure of angle ACB?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 45° (b) 60° (c) 90° (d) 125°

Q60 Two congruent right-angled triangles MNO and XYZ have right angles at M and X. If NO = 29 cm and XY = 20 cm, find MO.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 11 cm (b) 19 cm (c) 21 cm (d) 29 cm

Q61 Two equal circles of radius 14 cm intersect each other such that the centre of one circle lies on the circumference of the other. Determine the length of the common chord.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) $7\sqrt{3}$ cm (b) 7 cm (c) $14\sqrt{3}$ cm (d) 14 cm

Q62 Two concentric circles have radii 13 cm and 5 cm. A chord of the outer circle is tangent to the inner circle. Find the length of that chord.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 20 cm (b) 22 cm (c) 24 cm (d) 26 cm

Q63 In a triangle, the centroid divides each median in the ratio 2:1. What is the distance between the centroid and the orthocenter in an equilateral triangle?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) Equal to the side length (b) Zero
(c) Half the side length (d) One-third of the side length

Q64 The measure of supplement of ∠y is 40° more than twice the measure of the complement of ∠y. Find the sum in degrees of the supplement and complement of ∠y.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 270° (b) 150° (c) 190° (d) 110°

Q65 In triangle ABC, points D and E lie on sides AB and AC, respectively, such that DE is parallel to BC. If AD : DB = 2 : 3 and AE = 8 cm, then find the length of AC.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 12 cm (b) 18 cm (c) 20 cm (d) 24 cm

Q66 In triangle XYZ, ∠X = 65° and ∠Y = 55°. Which of the following is correct?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) XY < XZ (b) XZ < XY (c) YZ < XY (d) XZ > YZ

Q67 In triangle ABC, AD and BE are altitudes drawn from vertices A and B to sides BC and AC, respectively, with AD ⊥ BC and BE ⊥ AC. The altitudes intersect at point F. If BF is equal in length to AC, determine the measure of ∠ABC.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 25° (b) 45° (c) 60° (d) 70°

Q68 A circle has diameter 34 cm. Two equal chords AB and CD are parallel. AD is a diameter. If AB is 8 cm from the centre, find the length of CD.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 10 cm (b) 15 cm (c) 25 cm (d) 30 cm

Q69 From external point P, a secant passes through the circle intersecting at A and B (PA = 4 cm, PB = 9 cm). A tangent from P touches the circle at T. What is PT?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 3 cm (b) 4 cm (c) 5 cm (d) 6 cm

Q70 Two circles are non-intersecting and lie completely external to each other. What is the total number of common tangents (both direct and transverse combined) that can be drawn to these two circles?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 2 (b) 3 (c) 4 (d) 0

Q71 A chord subtends an angle of 90° at the centre of a circle. If the radius is 10 cm, find the chord length.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 10√4 cm (b) 10√2 cm (c) 12√4 cm (d) 16 cm

Q72 AB is a chord of a circle and P lies on the minor arc AB. Tangents at A and B meet at point T. If ∠APB = 104°, find ∠ATB.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 28° (b) 36° (c) 48° (d) 54°

Q73 In △ABC, D and E are the points on AB and AC, respectively, such that AD × AC = AB × AE. If ∠ADE = ∠ACB + 30° and ∠ABC = 78°, find the measure of angle A.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 48° (b) 68° (c) 60° (d) 54°

Q74 Two circles with radii 12 cm and 8 cm have their centers 25 cm apart. What is the length of their transverse common tangent segment?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 17 cm (b) 10 cm (c) 15 cm (d) 20 cm

Q75 Two regular polygons have (n - 1) and (n + 2) sides respectively. If the difference in their exterior angles is 6°, find the value of n.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 15 (b) 16 (c) 14 (d) 13

ANSWER KEY · Mock Set 03

51 (b)	52 (a)	53 (c)	54 (c)	55 (a)
56 (c)	57 (a)	58 (c)	59 (c)	60 (c)
61 (c)	62 (c)	63 (b)	64 (c)	65 (c)
66 (b)	67 (b)	68 (d)	69 (d)	70 (c)
71 (b)	72 (a)	73 (d)	74 (c)	75 (d)

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q51 **Ans (b)**

$\sqrt{93}$ cm

Transverse tangent = √(17² − 14²) = √(289 − 196) = **√93 cm**।

Q52 **Ans (a)**

85 cm

OP = √(13² + 84²) = √7225 = **85 cm**।

Q53 **Ans (c)**

60°

180 − θ/2 = 120 ⇒ θ = 120° ⇒ ∠APB = 180 − 120 = **60°**।

Q54 **Ans (c)**

55°

AD/AB = AE/AC ⇒ DE ∥ BC ⇒ ∠ADE = ∠B = 75° = ∠C + 25 ⇒ ∠C = 50 ⇒ ∠A = **55°**।

Q55 **Ans (a)**

9

बाहर से छूने वाले दो वृत्तों के 3 common tangents होते हैं; तीन जोड़े ⇒ 3 × 3 = **9**।

Q56 **Ans (c)**

3 : 1

Octagon: अंतः कोण 135°, बाह्य 45° ⇒ **3 : 1**।

Q57 **Ans (a)**

40°

अर्धवृत्त में ∠C = 90° ⇒ ∠ABC = 180 − 90 − 50 = **40°**।

Q58 **Ans (c)**

The incenter is equidistant from all three sides.

Incentre की परिभाषा: तीनों भुजाओं से समान दूरी ⇒ विकल्प **(c)**।

Q59 **Ans (c)**

90°

अर्धवृत्त का कोण ⇒ **90°**।

Q60 **Ans (c)**

21 cm

NO = YZ = 29 (कर्ण), XY = MN = 20 ⇒ MO = √(841 − 400) = **21 cm**।

Q61 **Ans (c)**

$14\sqrt{3}$ cm

केंद्रों की दूरी = r ⇒ common chord = r√3 = **14√3 cm**।

Q62 **Ans (c)**

24 cm

Chord, भीतरी वृत्त को छूती है ⇒ केंद्र से दूरी 5 ⇒ chord = 2√(169 − 25) = **24 cm**।

Q63 **Ans (b)**

Zero

समबाहु त्रिभुज में centroid और orthocenter एक ही बिंदु ⇒ दूरी **शून्य**।

Q64 **Ans (c)**

190°

180 − y = 2(90 − y) + 40 ⇒ y = 40 ⇒ 140 + 50 = **190°**।

Q65 **Ans (c)**

20 cm

AE/AC = AD/AB = 2/5 ⇒ AC = 8 × 5/2 = **20 cm**।

Q66 **Ans (b)**

XZ < XY

∠Z = 60°। सबसे छोटा कोण ∠Y = 55° के सामने XZ ⇒ XZ < XY (∠Z = 60°) ⇒ **XZ < XY**।

Q67 **Ans (b)**

45°

BF = 2R cos B, AC = 2R sin B ⇒ tan B = 1 ⇒ **∠ABC = 45°**।

Q68 **Ans (d)**

30 cm

r = 17, दूरी 8 ⇒ आधी chord = 15 ⇒ CD = **30 cm**।

Q69 **Ans (d)**

6 cm

PT² = PA × PB = 4 × 9 = 36 ⇒ **PT = 6 cm**।

Q70 **Ans (c)**

4

पूरी तरह बाहर स्थित वृत्तों के 2 direct + 2 transverse = **4** tangents।

Q71 **Ans (b)**

10√2 cm

केंद्र पर 90° ⇒ chord = r√2 = **10√2 cm**।

Q72 **Ans (a)**

28°

180 − θ/2 = 104 ⇒ θ = 152° ⇒ ∠ATB = 180 − 152 = **28°**।

Q73 **Ans (d)**

54°

DE ∥ BC ⇒ ∠ADE = ∠B = 78° = ∠C + 30 ⇒ ∠C = 48 ⇒ ∠A = **54°**।

Q74 **Ans (c)**

15 cm

√(25² − 20²) = √225 = **15 cm**।

Q75 **Ans (d)**

13

360/(n − 1) − 360/(n + 2) = 6 ⇒ 1080/[(n − 1)(n + 2)] = 6 ⇒ (n − 1)(n + 2) = 180 = 12 × 15 ⇒ **n = 13**।

Mock Set 04 Q76–Q100 · 9 Oct → 12 Oct

TOPIC · Geometry (4/7)

Q76 In △ZWR, the bisector of ∠R meets side ZW at S, ZR = 10 cm, RW = 14 cm and ZW = 12 cm. What is the length of SW?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 5 cm (b) 7 cm (c) 11 cm (d) 17 cm

Q77 A chord subtends 130° at the centre. What is the sum of angles subtended by it at a point on the major arc and minor arc?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 120° (b) 180° (c) 200° (d) 240°

Q78 In a circle with center O, PQ is the diameter and RS is a chord such that PQRS is a trapezium. If ∠QPR = 30°, find the measure of ∠RPS.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 30° (b) 20° (c) 25° (d) 40°

Q79 In △ABC and △DEF, ∠A = 55°, AB = DE, AC = DF, ∠E = 85° and ∠F = 40°. By which property are △ABC and △DEF congruent?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) RHS property (b) SSS property
(c) SAS property (d) ASA property

Q80 Two congruent circles, each having radius 12 cm, intersect in such a way that each circle passes through the centre of the other. Find the length of their common chord.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 4 cm (b) $6\sqrt{3}$ cm (c) 8 cm (d) $12\sqrt{3}$ cm

Q81 Three circles of radii 1 unit, 2 units, 3 units are mutually tangent externally. Find the distance between the centers of circles of radii 1 unit and 2 units.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 3 units (b) 2 units (c) 1 unit (d) 4 units

Q82 In an equilateral triangle, the centroid divides each median in a 2:1 ratio. What is the distance between the centroid and the nine-point center in an equilateral triangle?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Zero
(b) One-third of the circumradius
(c) Equal to the circumradius
(d) Half the circumradius

Q83 The ratio of the number of sides of two regular polygons is 1:2 and the ratio of their interior angles is 3:4. Find the number of sides of these polygons.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 15 sides and 30 sides (b) 3 sides and 6 sides
(c) 5 sides and 10 sides (d) 7 sides and 14 sides

Q84 In a triangle, the sides are 100, 150 and z units. How many integer values are possible for z?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 161 (b) 199 (c) 179 (d) 130

Q85 In triangle ABC, D and E lie on AB and AC such that DE is parallel to BC. If AD: DB = 5: 3 and AE = 15 cm, find AC.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 15 cm (b) 18 cm (c) 24 cm (d) 27 cm

Q86 In △PWR, WS ⊥ PR, RT ⊥ PW. WS and RT intersect each other at O. The bisectors of ∠OWR and ∠ORW meet at the same point M. If ∠WPR = 56°, then what is the measure of ∠WMR?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 152° (b) 178° (c) 180° (d) 118°

Q87 If $\triangle ABC \cong \triangle PQR$ and $\angle ABC = (x + 20)°$, $\angle PQR = (2x - 10)°$, and $\angle RPQ = (x + 40)°$, find $\angle ABC$.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 30° (b) 50° (c) 70° (d) 80°

Q88 A chord AB of a circle subtends an angle of 30° at a point on the circumference. If the length of AB is 5 cm, find the radius of the circle.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 2.5 cm (b) 3 cm (c) 4.5 cm (d) 5 cm

Q89 A chord of a circle measures 48 cm and is 7 cm away from the centre. What will be the length of another chord of the same circle that is 15 cm away from the centre?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 40 cm (b) 45 cm (c) 50 cm (d) 60 cm

Q90 If the ratio of the number of sides of two regular polygons is 5:4 and the difference between their interior angles is 9°. Find the number of sides of the polygon with more sides.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 4 (b) 10 (c) 8 (d) 15

Q91 CD is a chord of a circle and E lies on the minor arc CD. Tangents at C and D meet at F. If $\angle CED = 118°$, find $\angle CFD$.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 45° (b) 56° (c) 68° (d) 75°

Q92 In triangle ABC, DE is parallel to BC, AD = x + 1, DB = 2x, AE = 3x + 2, EC = 5x. Find the value of x (x > 0).

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 2 (b) 1 (c) 3 (d) 4

Q93 Consider the following two statements regarding a configuration of two distinct circles:

Statement 1: If the distance between the centers of two circles is strictly greater than the sum of their radii, then exactly four common tangents can be drawn to them.

Statement 2: If the distance between the centers of two circles is strictly less than the absolute difference of their radii, then no common tangents can be drawn to them.

Which of the following is correct?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) Only Statement 1 is true.
(b) Only Statement 2 is true.
(c) Both Statement 1 and Statement 2 are true.
(d) Neither Statement 1 nor Statement 2 is true.

Q94 The interior angle of a regular polygon exceeds its exterior angle by 108°. How many sides does the polygon have?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 12 (b) 18 (c) 7 (d) 10

Q95 Given that $\Delta ABC \sim \Delta DEF$, with AB = 6 cm, BC = 9 cm, and AC = 12 cm. If the ratio of the areas of the two similar triangles is 4: 9, find the length of EF.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 10.5 cm (b) 12 cm (c) 13.5 cm (d) 15 cm

Q96 The circumference of a circle is 34π cm. A chord in this circle has a length of 16 cm. What is the distance of this chord from the centre?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 8 cm (b) 10 cm (c) 12 cm (d) 15 cm

Q97 If two tangents to a circle of radius 4 cm are inclined at an angle of 120°, what is the length of each tangent?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) $\frac{4}{\sqrt{3}}$ cm (b) 12 cm
(c) $\frac{2}{\sqrt{3}}$ cm (d) 18 cm

Q98 A triangle has side lengths of 7 cm, 24 cm, and 25 cm. Determine the circumradius of the triangle.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 12.5 cm (b) 13.5 cm (c) 14 cm (d) 16 cm

Q99 In a regular polygon, each interior angle exceeds its corresponding exterior angle by 132°. Find the number of sides of the polygon.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 17 (b) 18 (c) 15 (d) 16

Q100 In ΔWTQ, ∠W = 50°, ∠T = 70°, and the bisectors of ∠T and ∠Q meet at R. Find ∠TRQ.

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 143° (b) 125° (c) 105° (d) 115°

ANSWER KEY · Mock Set 04

76 (b)	77 (b)	78 (a)	79 (c)	80 (d)
81 (a)	82 (a)	83 (c)	84 (b)	85 (c)
86 (a)	87 (b)	88 (d)	89 (a)	90 (b)
91 (b)	92 (b)	93 (c)	94 (d)	95 (c)
96 (d)	97 (a)	98 (a)	99 (c)	100 (d)

Mock Set 04 · Solutions

Answer · Explanation · Key facts

Q76 Ans (b)

7 cm

Angle bisector: ZS : SW = 10 : 14 ⇒ SW = 12 × 14/24 = **7 cm**।

Q77 Ans (b)

180°

Major arc पर 65°, minor arc पर 115° ⇒ योग **180°**।

Q78 Ans (a)

30°

∠PRQ = 90° ⇒ चाप QR = 2 × 30 = 60°। RS ∥ PQ ⇒ चाप PS = चाप QR = 60° ⇒ चाप RS = 60°।

∠RPS = 60/2 = **30°**।

Q79 Ans (c)

SAS property

∠D = 180 − 85 − 40 = 55° = ∠A; AB = DE, AC = DF ⇒ **SAS**।

Q80 Ans (d)

$12\sqrt{3}$ **cm**

Common chord = r√3 = **12√3 cm**।

Q81 Ans (a)

3 units

बाहर से स्पर्श ⇒ दूरी = 1 + 2 = **3 units**।

Q82 Ans (a)

Zero

समबाहु त्रिभुज में सभी केंद्र (nine-point center सहित) एक बिंदु पर ⇒ **शून्य**।

Q83 Ans (c)

5 sides and 10 sides

(n − 2)/n : (2n − 2)/(2n) = 3 : 4 ⇒ 8(n − 2) = 3(2n − 2) ⇒ n = 5 ⇒ **5 और 10 भुजाएँ**।

Q84 Ans (b)

199

150 − 100 < z < 150 + 100 ⇒ 51 से 249 तक ⇒ **199** पूर्णांक मान।

Q85 Ans (c)

24 cm

AE/AC = 5/8 ⇒ AC = 15 × 8/5 = **24 cm**।

Q86 Ans (a)

152°

O, △PWR का orthocenter ⇒ ∠WOR = 180 − 56 = 124°। M, △OWR के कोण-समद्विभाजकों का मिलन ⇒ ∠WMR = 90 + 124/2 = **152°**।

Q87 Ans (b)

50°

x + 20 = 2x − 10 ⇒ x = 30 ⇒ ∠ABC = **50°**।

Q88 Ans (d)

5 cm

Chord = 2R sin 30° = R ⇒ **R = 5 cm**।

Q89 Ans (a)

40 cm

$r^2 = 24^2 + 7^2 = 625$ ⇒ 15 cm दूर chord = 2√(625 − 225) = **40 cm**।

Q90 Ans (b)

10

भुजाएँ 5k, 4k: 360/(4k) − 360/(5k) = 18/k = 9 ⇒ k = 2 ⇒ अधिक भुजाओं वाला = **10**।

Q91 Ans (b)

56°

180 − θ/2 = 118 ⇒ θ = 124° ⇒ ∠CFD = 180 − 124 = **56°**।

Q92 **Ans (b)**

1

$(x + 1)/(2x) = (3x + 2)/(5x) \Rightarrow 5x + 5 = 6x + 4 \Rightarrow$ **x = 1**।

Q93 **Ans (c)**

Both Statement 1 and Statement 2 are true.

$d > r_1 + r_2 \Rightarrow$ 4 tangents ✓; $d < |r_1 - r_2| \Rightarrow$ एक वृत्त दूसरे के अंदर ⇒ कोई tangent नहीं ✓ ⇒ **दोनों कथन सत्य**।

Q94 **Ans (d)**

10

अंतः + बाह्य = 180, अंतर 108 ⇒ बाह्य = 36° ⇒ n = 360/36 = **10**।

Q95 **Ans (c)**

13.5 cm

क्षेत्रफल 4 : 9 ⇒ भुजा 2 : 3 ⇒ EF = 9 × 3/2 = **13.5 cm**।

Q96 **Ans (d)**

15 cm

r = 17 ⇒ दूरी = √(289 - 64) = **15 cm**।

Q97 **Ans (a)**

$\frac{4}{\sqrt{3}}$ cm

Tangents के बीच 120° ⇒ ∠OPT = 60° ⇒ tan 60° = 4/PT ⇒ PT = **4/√3 cm**।

Q98 **Ans (a)**

12.5 cm

7-24-25 समकोण त्रिभुज ⇒ R = कर्ण/2 = **12.5 cm**।

Q99 **Ans (c)**

15

बाह्य कोण = (180 - 132)/2 = 24° ⇒ n = 360/24 = **15**।

Q100 **Ans (d)**

115°

∠TRQ = 90 + ∠W/2 = 90 + 25 = **115°**।

Mock Set 05 Q101–Q125 · 12 Oct → 14 Oct

TOPIC · Geometry (5/7)

Q101 **A chord AB of a circle subtends an angle of 55° at a point on the major arc. What is the angle subtended by the same chord at the centre of the circle?**

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 55° (b) 117.5° (c) 110° (d) 125°

Q102 **A chord of a circle subtends 45° at the circumference. If the chord length is 8 cm, find the distance from the centre to the chord.**

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 2 cm (b) $2\sqrt{2}$ cm (c) 4 cm (d) $4\sqrt{2}$ cm

Q103 **In △ABC and △DEF, ∠A = 50°, ∠B = 60° and AB = DE. If ∠D = 50° and ∠E = 60°. By which property are △ABC and △DEF congruent?**

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) SAS property (b) ASA property
(c) SSS property (d) RHS property

Q104 **Two identical circles, each of radius 8 cm, intersect so that the distance between their centres is equal to the radius. Find the length of their common chord.**

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 4 cm (b) $4\sqrt{3}$ cm (c) 8 cm (d) $8\sqrt{3}$ cm

Q105 **Two circles have centres P and Q with radii 6 cm and 3 cm, respectively. AC is a transverse common tangent touching the circles at points A and C. If AC intersects the line joining the centres PQ at point B, and AB = 8 cm, find the length of PQ.**

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 12 cm (b) 15 cm (c) 18 cm (d) 21 cm

Q106 **In a triangle, the centroid divides each median in the ratio 2:1. What is the distance between the centroid and the incenter in an equilateral triangle?**

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) Equal to the altitude (b) Half the altitude
(c) Zero (d) One-third of the altitude

Q107 **Angles x and y are supplementary. y is 40° more than one-fourth of its supplementary angle. Find the value of the complement of half of x.**

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 22° (b) 90° (c) 34° (d) 45°

Q108 In triangle ABC, points D and E lie on AB and AC such that DE is parallel to BC. If $\frac{AD}{DB} = \frac{1}{2}$ and AE = 6 cm, find AC.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 14 cm (b) 18 cm (c) 20 cm (d) 22 cm

Q109 An equilateral triangle with side 12 cm is inscribed in a circle. What is the radius of the circle?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) $4\sqrt{7}$ cm (b) $6\sqrt{7}$ cm (c) $4\sqrt{3}$ cm (d) $6\sqrt{3}$ cm

Q110 In ΔABC, ∠A = 66° and ∠B = 50°. If the bisectors of ∠B and ∠C meet at P, then find the value of ∠BPC − ∠PCA?

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 100° (b) 91° (c) 60° (d) 73°

Q111 A chord AB of a circle subtends an angle of 120° at a point on the circumference. If the length of AB is $5\sqrt{3}$ cm, find the radius of the circle.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) $2\sqrt{3}$ cm (b) 5 cm (c) $\frac{5\sqrt{3}}{3}$ cm (d) 10 cm

Q112 Two congruent circles of radius 10 cm intersect in such a way that each passes through the centre of the other. Determine the length of their common chord.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 5 cm (b) $5\sqrt{3}$ cm (c) 10 cm (d) $10\sqrt{3}$ cm

Q113 In triangle ABC, a line DE is drawn parallel to side BC. The lengths are given as AD = a, DB = a + 4, AE = 2a + 3, and EC = 7a. Find the value of a, given that a is greater than zero.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 5 (b) 4 (c) 3 (d) 6

Q114 A chord of a circle subtends equal angles of 35° at two points on the same segment of the circle. What is the angle subtended by the same chord at the centre of the circle?

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 125° (b) 70° (c) 35° (d) 115°

Q115 In an equilateral triangle ABC, the altitudes AD, BE, and CF intersect at point H. Find the ratio AH : HD.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 1 : 1 (b) 2 : 1 (c) 3 : 1 (d) 3 : 2

Q116 AB is a chord in a circle with center O, and C is a point on the minor arc AB between A and B. Tangents drawn at points A and B meet at point D. If $\angle ACB = 116°$, find $\angle ADB$.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 65° (b) 48° (c) 52° (d) 74°

Q117 In triangle ABC, DE is parallel to BC, AD = x + 2, DB = 3x, AE = 4x + 1, EC = 7x. Find the value of x (x > 0).

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 4 (b) $\frac{17}{5}$ (c) $\frac{11}{5}$ (d) 5

Q118 If a straight line acts as a common tangent to two different circles, the perpendicular distance from the center of each circle to this line is equal to

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) the radius of the respective circle
(b) the sum of the radii
(c) the difference of the radii
(d) half the sum of the radii

Q119 If each interior angle of a regular polygon is 11 times its exterior angle, how many sides does the polygon have?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 26 (b) 38 (c) 25 (d) 24

Q120 An equilateral triangle has an inradius (r) of 5 cm. What is the length of its circumradius (R)?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 7 cm (b) 3 cm (c) 10 cm (d) 13 cm

Q121 A chord AB of a circle subtends an angle of 70° at a point on the major arc. What is the angle subtended by the same chord at the centre of the circle?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 35° (b) 70° (c) 125° (d) 140°

Q122 A chord of a circle has a length of 12 cm. The angle subtended by the chord at the circumference of the circle is 30°. What is the distance from the centre of the circle to the chord?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 3 cm (b) $3\sqrt{3}$ cm (c) 6 cm (d) $6\sqrt{3}$ cm

Q123 It is given that △ABC is congruent to △PQR. In △ABC, AB = 5 cm, ∠A = 80°, and ∠B = 40°. Which of the following options is correct?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) PQ = 5 cm and ∠P = 60°
(b) QR = 5 cm and ∠R = 60°
(c) QR = 5 cm and ∠Q = 60°
(d) PQ = 5 cm and ∠R = 60°

Q124 A circle with centre O has radius 15 cm. D is a point on the circle such that a 24 cm long chord AB is bisected by OD at point C. Find the length of CD (in cm).

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 3 cm (b) 6 cm (c) 9 cm (d) 12 cm

Q125 Three circles are drawn on a flat surface. None of the circles touch or cross each other, and none of them are inside one another. What is the maximum number of common tangents (lines that touch the circles at just one point) that can be drawn for all three pairs of circles combined?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 16 (b) 12 (c) 10 (d) 14

ANSWER KEY · Mock Set 05

101 (c)	102 (c)	103 (b)	104 (d)	105 (b)
106 (c)	107 (c)	108 (b)	109 (c)	110 (b)
111 (b)	112 (d)	113 (c)	114 (b)	115 (b)
116 (c)	117 (c)	118 (a)	119 (d)	120 (c)
121 (d)	122 (d)	123 (d)	124 (b)	125 (b)

Mock Set 05 · Solutions

Answer · Explanation · Key facts

Q101 Ans (c)

110°

केंद्र पर कोण = 2 × 55 = **110°**।

Q102 Ans (c)

4 cm

केंद्र पर 90° ⇒ chord = r√2 = 8 ⇒ r = 4√2 ⇒ दूरी = √(32 − 16) = **4 cm**।

Q103 Ans (b)

ASA property

∠A = ∠D, ∠B = ∠E और बीच की भुजा AB = DE ⇒ **ASA**।

Q104 Ans (d)

$8\sqrt{3}$ **cm**

केंद्रों की दूरी = r ⇒ common chord = r√3 = **8√3 cm**।

Q105 Ans (b)

15 cm

B केंद्रों को 6 : 3 में बाँटता है। △PAB में PB = √(6² + 8²) = 10 ⇒ PQ = 10 × 9/6 = **15 cm**।

Q106 Ans (c)

Zero

समबाहु त्रिभुज में centroid = incentre ⇒ दूरी **शून्य**।

Q107 Ans (c)

34°

y = 180 − x और y = x/4 + 40 ⇒ 140 = 5x/4 ⇒ x = 112 ⇒ x/2 = 56 ⇒ complement = **34°**।

Q108 Ans (b)

18 cm

AD : DB = 1 : 2 ⇒ AE/AC = 1/3 ⇒ AC = **18 cm**।

Q109 Ans (c)

$4\sqrt{3}$ **cm**

R = a/√3 = 12/√3 = **4√3 cm**।

Q110 Ans (b)

91°

∠C = 64°। ∠BPC = 90 + 66/2 = 123°, ∠PCA = 32° ⇒ अंतर = **91°**।

Q111 Ans (b)

5 cm

Circumference पर 120° (minor arc बिंदु) ⇒ केंद्रीय कोण = 360 − 240 = 120°।

Chord = 2R sin 60° = R√3 = 5√3 ⇒ **R = 5 cm**।

Q112 Ans (d)

$10\sqrt{3}$ **cm**

Common chord = r√3 = **10√3 cm**।

Q113 Ans (c)

3

a/(a + 4) = (2a + 3)/(7a) ⇒ 7a² = 2a² + 11a + 12 ⇒ 5a² − 11a − 12 = 0 ⇒ **a = 3**।

Q114 **Ans (b)**

70°

केंद्र पर = 2 × 35 = **70°**।

Q115 **Ans (b)**

2 : 1

समबाहु त्रिभुज में H = centroid ⇒ AH : HD = **2 : 1**।

Q116 **Ans (c)**

52°

180 − θ/2 = 116 ⇒ θ = 128° ⇒ ∠ADB = 180 − 128 = **52°**।

Q117 **Ans (c)**

$\frac{11}{5}$

(x + 2)/(3x) = (4x + 1)/(7x) ⇒ 7x + 14 = 12x + 3 ⇒ **x = 11/5**।

Q118 **Ans (a)**

the radius of the respective circle

Tangent, radius पर लंब होती है ⇒ हर केंद्र से दूरी = **उसी वृत्त की त्रिज्या**।

Q119 **Ans (d)**

24

अंतः = 11 × बाह्य ⇒ 12 × बाह्य = 180 ⇒ बाह्य = 15° ⇒ **24 भुजाएँ**।

Q120 **Ans (c)**

10 cm

समबाहु त्रिभुज में R = 2r = **10 cm**।

Q121 **Ans (d)**

140°

केंद्र पर = 2 × 70 = **140°**।

Q122 **Ans (d)**

$6\sqrt{3}$ **cm**

केंद्रीय कोण 60° ⇒ R = chord = 12 ⇒ दूरी = √(144 − 36) = **6√3 cm**।

Q123 **Ans (d)**

PQ = 5 cm and ∠R = 60°

A ↔ P, B ↔ Q, C ↔ R ⇒ PQ = AB = 5 cm और ∠R = ∠C = 180 − 80 − 40 = 60° ⇒ **PQ = 5 cm, ∠R = 60°**।

Q124 **Ans (b)**

6 cm

OC = √(15² − 12²) = 9 ⇒ CD = 15 − 9 = **6 cm**।

Q125 **Ans (b)**

12

अलग-अलग (non-touching) हर जोड़े के 4 tangents; 3 जोड़े ⇒ **12**।

Mock Set 06 Q126–Q150 · 15 Oct → 22 Oct

TOPIC · Geometry (6/7)

Q126 An exterior angle of a regular polygon is 36°. What is the total number of diagonals that can be drawn in this polygon?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 21 (b) 18 (c) 39 (d) 35

Q127 In triangle △ABC, points D and E lie on sides AC and BC, respectively, such that DE is parallel to AB. A point F is located on segment CE, and DF is parallel to AE. If CE = 6 cm and CF = 2.5 cm, find the length of BC.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 13.8 cm (b) 17 cm (c) 14.4 cm (d) 18 cm

Q128 A circle has diameter 58 cm. Two equal chords PQ and RS are parallel. PS is a diameter. If PQ is 20 cm from the centre, find the length of RS.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 28 cm (b) 42 cm (c) 56 cm (d) 84 cm

Q129 Tangents PA and PB are drawn to a circle with center O from point P outside the circle. If the angle between the tangents $\angle APB = 60^\circ$ and the radius OA = 10 cm, find the length of the chord AB.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) $10\sqrt{3}$ cm (b) 12 cm (c) $14\sqrt{3}$ cm (d) 18 cm

Q130 Two circles of different radii intersect at two points, A and B. A direct common tangent touches the circles at points P and Q. If the extension of the common chord AB meets the tangent line PQ at point X, and PX=6 cm, find the length of the segment PQ in centimeters.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 9 cm (b) 10 cm (c) 12 cm (d) 16 cm

Q131 A chord of a circle subtends an angle of 70° at the centre. What angle does the same chord subtend at a point on the circumference lying in the opposite segment of the circle?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 140° (b) 35° (c) 125° (d) 55°

Q132 In ΔABD, the angle bisector of $\angle B$ meets AD at E. If AB = 10 units and BD = 6 units, find the ratio AE : ED.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 3 : 2 (b) 5 : 3 (c) 4 : 3 (d) 2 : 1

Q133 The adjacent sides of a parallelogram are 7 cm and 9 cm. If the length of one diagonal is 8 cm, what is the length of the other diagonal?

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 12 cm (b) 13 cm (c) 14 cm (d) 15 cm

Q134 In a circle, chord XY subtends an angle of 50° at point A on the circumference. What angle will it subtend at another point B situated in the same segment?

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 25° (b) 50° (c) 65° (d) 115°

Q135 Two congruent circles, each of radius 4 cm, intersect in such a way that the centre of each circle lies on the circumference of the other. Find the length of their common chord.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 2 cm (b) $2\sqrt{3}$ cm (c) 4 cm (d) $4\sqrt{3}$ cm

Q136 In triangle ABC, points D and E lie on AB and AC, respectively, such that AD × AC = AB × AE. If $\angle ADE = \angle ACB + 20°$ and $\angle ABC = 70°$, find $\angle A$.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 50° (b) 48° (c) 54° (d) 60°

Q137 Triangles ΔABC and ΔPQR satisfy the conditions AB = PQ and $\angle B = \angle Q$. Under what additional condition can we conclude that $\Delta ABC \cong \Delta PQR$ by the SAS congruence criterion?

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) BC = QR (b) AC = PR (c) AC = QR (d) BC = PQ

Q138 Two intersecting circles have a common tangent line and a common chord. The line segment joining the centers of these two circles is always perpendicular to:

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) The common tangent line, only if the two circles have equal radii.
(b) The common chord of the two circles.
(c) The tangent drawn from an external point to only one circle.
(d) The common tangent line, regardless of the radii of the circles.

Q139 A chord of length 12 cm is at a distance of 8 cm from the center of a circle. What is the radius of the circle?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 5 cm (b) 8 cm (c) 10 cm (d) 12 cm

Q140 A circle is inscribed in a quadrilateral ABCD touching all its sides. If the line segments joining the center O to the vertices A and B form ΔAOB, and the consecutive angles satisfy ($\angle C + \angle D = 180°$) (a trapezium configuration), what is the measure of $\angle AOB$?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 45° (b) 60° (c) 90° (d) 120°

Q141 In ΔABC, AB = AC = 10 units and BC = 12 units. A line is drawn through the centroid G parallel to BC, meeting AB at P and AC at Q. Find the length of PQ.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 6 units (b) 7 units (c) 8 units (d) 9 units

Q142 Two coplanar circles with radii 2 cm and 5 cm have their centers 11 cm apart. How many common tangents can be drawn to these circles?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 0 (b) 1 (c) 2 (d) 4

Q143 A chord of length 10 cm is 6 cm away from the centre of a circle. What is the radius of the circle?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) √62 cm (b) √63 cm (c) √65 cm (d) √61 cm

Q144 The distance between the centroid and the circumcentre of an equilateral triangle with a side of 6 cm is:

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 0 cm (b) 3 cm (c) 6 cm (d) 9 cm

Q145 A chord of length 40 cm is at a distance of 21 cm from the center of a circle. What is the radius of the circle?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 10.5 cm (b) 20 cm (c) 18.5 cm (d) 29 cm

Q146 From an external point T, two tangents TP and TQ are drawn to a circle. A third tangent line is drawn intersecting TP at point A and TQ at point B such that it touches the circle at point M. If the perimeter of ΔTAB is 24 cm, what is the length of the tangent segment TP?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 6 cm (b) 9 cm (c) 12 cm (d) 16 cm

Q147 In ΔABC, AB = 15 units, AC = 12 units, and BC = 18 units. A point D lies on BC such that BD:DC = 2:1. A line through D parallel to AB meets AC at E. Find the length of AE.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 2 units (b) 4 units (c) 6 units (d) 8 units

Q148 Two distinct coplanar circles can have exactly two common tangents in which of the following cases?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) The circles are completely separate from each other.
(b) The circles touch each other externally.
(c) The circles intersect at two distinct points.
(d) One circle lies completely inside the other without touching it.

Q149 In ΔABC, the angle bisector of $\angle A$ is also a median of the triangle. Which of the following statements must always be true?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) AB = AC (b) $\angle A = 90°$
(c) BC = 2AB (d) AB = 2AC

Q150 Two concentric coplanar circles have radii 4 cm and 9 cm. How many common tangents can be drawn to these circles?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 0 (b) 1 (c) 2 (d) 4

ANSWER KEY · Mock Set 06

126 (d)	127 (c)	128 (b)	129 (a)	130 (c)
131 (b)	132 (b)	133 (c)	134 (b)	135 (d)
136 (d)	137 (a)	138 (b)	139 (c)	140 (c)
141 (c)	142 (d)	143 (d)	144 (a)	145 (d)
146 (c)	147 (d)	148 (c)	149 (a)	150 (a)

Mock Set 06 · Solutions

Answer · Explanation · Key facts

Q126 Ans (d)

35

n = 360/36 = 10 ⇒ diagonals = n(n - 3)/2 = **35**।

Q127 Ans (c)

14.4 cm

DE ∥ AB ⇒ CD/CA = CE/CB; DF ∥ AE ⇒ CF/CE = CD/CA ⇒ CE/CB = CF/CE।

CB = CE^2/CF = 36/2.5 = **14.4 cm**।

Q128 Ans (b)

42 cm

r = 29, दूरी 20 ⇒ आधी chord = √(841 - 400) = 21 ⇒ RS = **42 cm**।

Q129 Ans (a)

$10\sqrt{3}$ cm

∠AOB = 180 - 60 = 120° ⇒ AB = 2 × 10 × sin 60° = **10√3 cm**।

Q130 Ans (c)

12 cm

Common chord की रेखा (radical axis) direct tangent को समद्विभाजित करती है ⇒ PX = XQ ⇒ PQ = **12 cm**।

Q131 Ans (b)

35°

परिधि पर = 70/2 = **35°**।

Q132 Ans (b)

5 : 3

Angle bisector: AE : ED = AB : BD = 10 : 6 = **5 : 3**।

Q133 **Ans (c)**

14 cm

$d_1^2 + d_2^2 = 2(a^2 + b^2) = 2(49 + 81) = 260 \Rightarrow d_2^2 = 196 \Rightarrow$ **14 cm**।

Q134 **Ans (b)**

50°

एक ही segment के कोण बराबर ⇒ **50°**।

Q135 **Ans (d)**

$4\sqrt{3}$ cm

Common chord = $r\sqrt{3}$ = **$4\sqrt{3}$ cm**।

Q136 **Ans (d)**

60°

DE ∥ BC ⇒ ∠ADE = ∠B = 70° = ∠C + 20 ⇒ ∠C = 50 ⇒ ∠A = **60°**।

Q137 **Ans (a)**

BC = QR

SAS के लिए दो भुजाएँ और उनके बीच का कोण: AB = PQ, ∠B = ∠Q और **BC = QR**।

Q138 **Ans (b)**

The common chord of the two circles.

केंद्रों को मिलाने वाली रेखा **common chord की लंब समद्विभाजक** होती है।

Q139 **Ans (c)**

10 cm

$r = \sqrt{(6^2 + 8^2)}$ = **10 cm**।

Q140 **Ans (c)**

90°

Tangential चतुर्भुज में ∠AOB = 180 - (∠A + ∠B)/2। ∠C + ∠D = 180 ⇒ ∠A + ∠B = 180 ⇒ ∠AOB = **90°**।

Q141 **Ans (c)**

8 units

G से BC के समानांतर रेखा ⇒ PQ = (2/3) × BC = **8 units**।

Q142 **Ans (d)**

4

d = 11 > 2 + 5 ⇒ **4** tangents।

Q143 **Ans (d)**

$\sqrt{61}$ cm

$r = \sqrt{(5^2 + 6^2)}$ = **$\sqrt{61}$ cm**।

Q144 **Ans (a)**

0 cm

समबाहु त्रिभुज में centroid = circumcentre ⇒ **0 cm**।

Q145 **Ans (d)**

29 cm

$r = \sqrt{(20^2 + 21^2)} = \sqrt{841}$ = **29 cm**।

Q146 **Ans (c)**

12 cm

AM = AP, BM = BQ ⇒ △TAB की परिधि = TP + TQ = 2TP = 24 ⇒ **TP = 12 cm**।

Q147 **Ans (d)**

8 units

DE ∥ AB ⇒ CE/CA = CD/CB = 1/3 ⇒ CE = 4 ⇒ AE = **8 units**।

Q148 **Ans (c)**

The circles intersect at two distinct points.

दो बिंदुओं पर काटने वाले वृत्तों के ठीक **2** common tangents ⇒ विकल्प **(c)**।

Q149 **Ans (a)**

AB = AC

Angle bisector = median ⇒ BD/DC = AB/AC = 1 ⇒ **AB = AC**।

Q150 **Ans (a)**

0

Concentric वृत्त (एक अंदर दूसरा) ⇒ **0** tangents।

Mock Set 07 Q151–Q184 · 22 Oct → 28 Oct

TOPIC · Geometry (7/7)

Q151 **A perpendicular of length 12 cm is drawn from the centre of a circle to a chord of length 70 cm. Find the diameter of the circle.**

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 28 cm (b) 35 cm (c) 37 cm (d) 74 cm

Q152 **Two tangents drawn from an external point to a circle form an angle of 110°. The angle subtended at the center by the radii through the points of contact is:**

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 40° (b) 60° (c) 70° (d) 90°

Q153 In ΔABC, AD and BE are medians intersecting at G. A line is drawn through G parallel to AC, meeting AB at P and BC at Q. If AC = 18 units, find the length of PQ.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 9 units (b) 10 units (c) 12 units (d) 15 units

Q154 A conveyor belt runs tightly around two circular wheels in an open configuration. The radii of the wheels are 15 cm and 6 cm, while the distance between their centers is 41 cm. Find the length of the straight section of the belt between the two wheels.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 40 cm (b) 41 cm (c) 35 cm (d) 60 cm

Q155 In ΔPBC, $\angle P = 66°$ and $\angle B = 50°$. If the bisectors of $\angle B$ and $\angle C$ meet at T, then find the value of $\angle BTC - \angle TCP$?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 83° (b) 76° (c) 97° (d) 91°

Q156 A perpendicular of length 15 cm is drawn from the centre of a circle to a chord of length 40 cm. Find the radius of the circle.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 20 cm (b) 22 cm (c) 25 cm (d) 27 cm

Q157 From an external point P which is at a distance of 6 cm from the center O of a circle of radius 3 cm, a pair of tangents are drawn. Find the angle θ between the two tangents.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 30° (b) 45° (c) 60° (d) 90°

Q158 In ΔABC, D is the midpoint of side BC and E is the midpoint of side AC. The segments BE and AD intersect at point G. If the area of ΔBDG is 5 square units, find the area of ΔABC.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 30 square units (b) 45 square units
(c) 60 square units (d) 75 square units

Q159 Two separate circles have radii of 8 cm and 2 cm. If the distance between their centers is 13 cm, find the length of their transverse common tangent.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) ≈ 8.31 cm (b) ≈ 11.5 cm (c) ≈ 13.21 cm (d) ≈ 14.4 cm

Q160 The length of a chord is 24 cm and the radius of the circle is 13 cm. Find the distance of the chord from the centre.

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 7 cm (b) 6 cm (c) 9 cm (d) 5 cm

Q161 The sides of a parallelogram are in the ratio of 5:4. Given that the sum of the squares of its diagonals is 328 cm^2, determine the length of the longer side.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 8 cm (b) 10 cm (c) 12 cm (d) 15 cm

Q162 If a chord of length 30 cm is drawn in a circle of radius 17 cm, what is the perpendicular distance from the center to the chord?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 4 cm (b) 8 cm (c) 12 cm (d) 15 cm

Q163 If the length of a tangent from an external point to a circle is 24 cm and the radius of the circle is 7 cm, then the distance from the center to the external point is:

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 19 cm (b) 21 cm (c) 23 cm (d) 25 cm

Q164 In an equilateral triangle ABC with a side length of 8 units, point D is the midpoint of side BC. A line passing through D is parallel to side AC and intersects side AB at point E. Find the length of segment DE.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 2 units (b) 3 units (c) 4 units (d) 6 units

Q165 A line is tangent to two distinct coplanar circles C_1 and C_2. This line is called a:

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) Common secant (b) Common chord
(c) Common tangent (d) Radical axis

Q166 In ΔPQR, the medians intersect at centroid G. If the total length of median PD is 15 cm, what is the length of segment PG?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 7 cm (b) 13 cm (c) 8 cm (d) 10 cm

Q167 In a circle of radius 15 cm, two equal parallel chords lie on opposite sides of the centre. The distance between the chords is 18 cm. Find the length of each chord.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 8 cm (b) 12 cm (c) 16 cm (d) 24 cm

Q168 Triangle PQR is inscribed in a circle. A tangent is drawn at P parallel to QR. If triangle PQR is equilateral (PQ = QR = PR), what is the angle ∠QPR between chord PQ and chord PR as seen from P?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 20° (b) 30° (c) 60° (d) 90°

Q169 The transverse common tangents to two completely separate coplanar circles, having radii r_1 and r_2 respectively, intersect at a point on the line segment joining their centers. This point divides the line segment from the center of the first circle to the center of the second circle in the ratio:

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) $r_1 : r_2$ (b) $(r_1 + r_2) : r_1$
(c) 1 : 1 (d) $(r_1 + r_2) : (r_1 - r_2)$

Q170 A parallelogram has adjacent sides of length 15 cm and 9 cm. If the distance between the longer sides is 6 cm, what is the distance between the shorter sides?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 10 cm (b) 8 cm (c) 12 cm (d) 9 cm

Q171 In ΔXYZ, the medians intersect at centroid G. If the total length of the median starting from vertex Z is 9 cm, what is the length of segment GZ?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 2 cm (b) 9 cm (c) 6 cm (d) 3 cm

Q172 Two equal parallel chords of a circle lie on opposite sides of the centre. The perpendicular distance between the chords is 6 cm. If the radius of the circle is 5 cm, find the length of each chord (in cm).

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 2 cm (b) 4 cm (c) 6 cm (d) 8 cm

Q173 A tangent AB is drawn to a circle at point A. If the radius OA = 4 cm and ∠AOB = 60°, find the length of the tangent AB.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 4√3 cm (b) 4 cm (c) 2 cm (d) 2√3 cm

Q174 Two circles have radii of 13 cm and 8 cm. If the distance between their centres is 5 cm, which of the following statements is true regarding the common tangents that can be drawn to this pair of circles?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) No common tangent can be drawn because one circle lies entirely inside the other without touching.
(b) There is exactly one common tangent because the two circles touch internally.
(c) There are exactly two common tangents because the two circles intersect at two distinct points.
(d) There are exactly three common tangents because the two circles touch each other externally.

Q175 In ΔABC, the side lengths are AB = 10 units and BC = 12 units. The median drawn from vertex A meets the side BC at point D. The interior angle bisector of ∠B intersects the segment AD at point E. What is the ratio AE : ED?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 5 : 3 (b) 3 : 2 (c) 4 : 3 (d) 5 : 4

Q176 Two coplanar circles have radii r and 3r. For these circles to have exactly 3 common tangents, the distance between their centers must be:

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 2r (b) 3r (c) 4r (d) 5r

Q177 Which value of m gives a Pythagorean triplet where the difference between the hypotenuse and the middle number is 2?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 3 (b) 4 (c) 5 (d) 6

Q178 A tangent is drawn to a circle at point T. From a point A on the circle, a chord AB is drawn parallel to the tangent. If the length of the chord AB = 16 cm and the radius of the circle is 10 cm, find the distance from point T to the chord AB.

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 21 cm (b) 3 cm (c) 7 cm (d) 4 cm

Q179 In ΔABC, the interior angle bisectors of ∠B and ∠C intersect at point I. A line passing through I is parallel to BC and intersects the segments AB and AC at points P and Q respectively. If AB = 12 units and AC = 15 units, what is the perimeter of triangle APQ?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 20 units (b) 22 units (c) 24 units (d) 27 units

Q180 Two distinct coplanar circles touch each other internally. How many common tangents can be drawn to these two circles?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 1 (b) 2 (c) 3 (d) 4

Q181 In $\triangle PQR$, the medians intersect at centroid G. If the segment PG is 15 cm, what is the total length of the median PD?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 22.5 cm (b) 19.5 cm (c) 27 cm (d) 17 cm

Q182 A circle has a radius of 10 cm. A chord is drawn at a distance of 6 cm from the center. What is the length of the chord?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 8 cm (b) 12 cm (c) 14 cm (d) 16 cm

Q183 PA and PB are two tangents from an external point P to a circle with center O. If ∠APB = 70°, what is the measure of ∠OAB?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 15° (b) 25° (c) 35° (d) 55°

Q184 Two circles with radii 10 cm and 6 cm intersect at two distinct points. What is the total number of common tangents that can be drawn to these circles?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 3 (b) 2 (c) 4 (d) 1

ANSWER KEY · Mock Set 07

151 (d)	152 (c)	153 (c)	154 (a)	155 (d)
156 (c)	157 (c)	158 (a)	159 (a)	160 (d)
161 (b)	162 (b)	163 (d)	164 (c)	165 (c)
166 (d)	167 (d)	168 (c)	169 (a)	170 (a)
171 (c)	172 (d)	173 (a)	174 (b)	175 (a)
176 (c)	177 (a)	178 (d)	179 (d)	180 (a)
181 (a)	182 (d)	183 (c)	184 (b)	

Mock Set 07 · Solutions

Answer · Explanation · Key facts

Q151 Ans (d)

74 cm

r = √(35² + 12²) = 37 ⇒ व्यास = **74 cm**।

Q152 Ans (c)

70°

केंद्र पर कोण = 180 − 110 = **70°**।

Q153 Ans (c)

12 units

G से AC के समानांतर ⇒ PQ = (2/3) × 18 = **12 units**।

Q154 Ans (a)

40 cm

Direct tangent = √(41² − 9²) = √1600 = **40 cm**।

Q155 Ans (d)

91°

∠C = 64°। ∠BTC = 90 + 33 = 123°, ∠TCP = 32° ⇒ **91°**।

Q156 Ans (c)

25 cm

r = √(20² + 15²) = **25 cm**।

Q157 Ans (c)

60°

sin(θ/2) = 3/6 ⇒ θ/2 = 30° ⇒ **θ = 60°**।

Q158 Ans (a)

30 square units

Medians त्रिभुज को 6 बराबर भागों में बाँटती हैं ⇒ △ABC = 6 × 5 = **30 square units**।

Q159 Ans (a)

≈ 8.31 cm

√(13² − 10²) = √69 ≈ **8.31 cm**।

Q160 Ans (d)

5 cm

√(13² − 12²) = **5 cm**।

Q161 **Ans (b)**

10 cm

$2(25k^2 + 16k^2) = 328 \Rightarrow k = 2 \Rightarrow$ बड़ी भुजा = **10 cm**।

Q162 **Ans (b)**

8 cm

$\sqrt{(17^2 - 15^2)} =$ **8 cm**।

Q163 **Ans (d)**

25 cm

$\sqrt{(24^2 + 7^2)} =$ **25 cm**।

Q164 **Ans (c)**

4 units

D मध्य बिंदु, DE ∥ AC ⇒ DE = AC/2 = **4 units**।

Q165 **Ans (c)**

Common tangent

दोनों वृत्तों को छूने वाली रेखा = **Common tangent**।

Q166 **Ans (d)**

10 cm

PG = 2/3 × 15 = **10 cm**।

Q167 **Ans (d)**

24 cm

हर chord 9 cm दूर ⇒ $2\sqrt{(225 - 81)} =$ **24 cm**।

Q168 **Ans (c)**

60°

समबाहु त्रिभुज का हर कोण **60°**।

Q169 **Ans (a)**

$r_1 : r_2$

Transverse tangents का मिलन-बिंदु केंद्रों को आंतरिक रूप से $r_1 : r_2$ में बाँटता है।

Q170 **Ans (a)**

10 cm

क्षेत्रफल = 15 × 6 = 90 = 9 × h ⇒ **h = 10 cm**।

Q171 **Ans (c)**

6 cm

GZ = 2/3 × 9 = **6 cm**।

Q172 **Ans (d)**

8 cm

हर chord 3 cm दूर ⇒ $2\sqrt{(25 - 9)} =$ **8 cm**।

Q173 **Ans (a)**

$4\sqrt{3}$ cm

$\tan 60° = AB/4 \Rightarrow AB =$ **$4\sqrt{3}$ cm**।

Q174 **Ans (b)**

There is exactly one common tangent because the two circles touch internally.

d = 5 = 13 - 8 ⇒ वृत्त अंदर से स्पर्श करते हैं ⇒ ठीक **एक** common tangent।

Q175 **Ans (a)**

5 : 3

BD = 6 (median)। △ABD में BE bisector ⇒ AE : ED = AB : BD = 10 : 6 = **5 : 3**।

Q176 **Ans (c)**

4r

3 common tangents ⇒ बाहर से स्पर्श ⇒ d = r + 3r = **4r**।

Q177 **Ans (a)**

3

$(m^2 - 1, 2m, m^2 + 1)$: m = 3 ⇒ 8, 6, 10 ⇒ कर्ण - मध्य = 10 - 8 = 2 ⇒ **m = 3**।

Q178 **Ans (d)**

4 cm

Tangent ∥ chord ⇒ T chord के ऊपर चाप का मध्य। केंद्र से chord = $\sqrt{(100 - 64)} = 6$ ⇒ T से दूरी = 10 - 6 = **4 cm**।

Q179 **Ans (d)**

27 units

PI = PB और QI = QC (समानांतर रेखा + bisector) ⇒ परिधि APQ = AB + AC = **27 units**।

Q180 **Ans (a)**

1

अंदर से स्पर्श ⇒ **1** tangent।

Q181 **Ans (a)**

22.5 cm

PD = 15 × 3/2 = **22.5 cm**।

Q182 **Ans (d)**

16 cm

$2\sqrt{(100 - 36)} = \mathbf{16\ cm}$।

Q183 **Ans (c)**

35°

$\angle AOB = 110° \Rightarrow \triangle OAB$ में $\angle OAB = (180 - 110)/2 = \mathbf{35°}$।

Q184 **Ans (b)**

2

दो बिंदुओं पर काटने वाले वृत्त ⇒ **2** tangents।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 17

Mensuration 2D

Triangle · Quadrilaterals · Circle · Sector · Path

76	1	3	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Mensuration 2D

01 Hexagon
भुजा a ⇒ क्षेत्रफल = $(3\sqrt{3}/2)a^2$; वृत्त में बने hexagon की भुजा = r।

02 Heron's formula
$\sqrt{(s(s-a)(s-b)(s-c))}$; 13-14-15 का क्षेत्रफल 84 याद रखें।

03 Sector / Arc
चाप = $2\pi r\cdot\theta/360$; sector परिमाप = 2r + चाप।

04 Rhombus
क्षेत्रफल = $d_1d_2/2$; भुजा² = $(d_1/2)^2 + (d_2/2)^2$।

05 % बदलाव
भुजा/विकर्ण x% बढ़े तो क्षेत्रफल $(1 + x)^2$ गुना।

Mock Set 01 Q1–Q25 · 30 Sep → 7 Oct

TOPIC · Mensuration (2D) (1/3)

Q1 If the diameter of a circle is 28 cm, then its area is:

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 154 cm² (b) 616 cm² (c) 308 cm² (d) 484 cm²

Q2 A hexagon is drawn inside a circle with a radius of 21 cm. Determine the area of the hexagon.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) $611.5\sqrt{9}$ cm² cm² (b) $661.5\sqrt{3}$ cm² cm²
(c) $621.5\sqrt{7}$ (d) $641.5\sqrt{3}$

Q3 Arcs of two circles with radii 15 cm and 20 cm subtend angles of 60° and 45° at their respective centres. What is the ratio of their arc lengths?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 1:2 (b) 3:1 (c) 1:1 (d) 2:3

Q4 In a quadrilateral ABCD, the diagonal AC is 20 cm. The perpendiculars from vertices B and D to AC are 9 cm and 11 cm respectively. Find the area of ABCD.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 180 cm² (b) 200 cm² (c) 220 cm² (d) 240 cm²

Q5 A sector of a circle has a perimeter of 45 cm and its radius is 12 cm. Find the angle of the sector in radians.

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 1.75 radians (b) 2.54 radians
(c) 3.65 radians (d) 5.78 radians

Q6 A quadrant of a circle has an area of $\frac{121\pi}{4}$ cm². Find the radius of the circle.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 13 cm (b) 9 cm (c) 11 cm (d) 7 cm

Q7 The sides of a triangle are in the ratio 4:7:7. If the perimeter is 90 cm, what is the area of the triangle?

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) $150\sqrt{5}$ cm² (b) $250\sqrt{5}$ cm² (c) $350\sqrt{5}$ cm² (d) $9\sqrt{5}$ c

Q8 A square lawn is enclosed by a path of uniform width 2.5 m. Given that the area of the path is 165 m², determine the side length of the square lawn.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 12 m (b) 14 m (c) 17 m (d) 19 m

Q9 The area of a triangle is 180 cm², and its base is 15 cm. What is the corresponding height?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 26 cm (b) 28 cm (c) 25 cm (d) 24 cm

Q10 A regular hexagon has side 20 m. Find the cost of fencing it at Rs50 per meter.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) Rs6000 (b) Rs6030 (c) Rs6580 (d) Rs6400

Q11 In a circle of radius 28 cm, an arc subtends an angle of 45 degrees at the centre. Find the length of the arc. (Take π = 22/7)

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 27 cm (b) 15 cm (c) 22 cm (d) 18 cm

Q12 A wire of length 132 cm bent into the shape of a circle. Find its radius.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 21 cm (b) 18 cm (c) 22 cm (d) 14 cm

Q13 A regular hexagon is inscribed inside a circle of radius 14 cm. Find the area of the hexagon.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) $287\sqrt{3}$ cm² (b) $259\sqrt{7}$ cm² (c) $224\sqrt{3}$ cm² (d) $294\sqrt{3}$

Q14 Two circles have radii in the ratio 3 : 5. The arc of the smaller circle subtends 75° at its centre, and the arc of the larger circle subtends 45° at its centre. What is the ratio of their arc lengths (smaller : larger)?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 3:5 (b) 5:3 (c) 1:1 (d) 2:3

Q15 A regular hexagon and a square having the same perimeter. If the area of the square is 196 cm², find the exact area of the hexagon.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) $\frac{203\sqrt{7}}{3}$ cm² (b) $\frac{323\sqrt{3}}{5}$ cm² (c) $\frac{210\sqrt{3}}{9}$ cm² (d) $\frac{392\sqrt{3}}{3}$ cm²

Q16 A circle has a radius of 7 cm, and a square is drawn around it such that the circle touches all four sides. Find the area of the square.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 196 cm² (b) 126 cm² (c) 183 cm² (d) 191 cm²

Q17 If the area of a quadrant of a circle is $\frac{\pi}{16}$ m², find the radius (in meters).

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) $\frac{1}{4}$ m (b) 1 m (c) $\frac{1}{2}$ m (d) 2 m

Q18 The perimeter of an isosceles right-angled triangle is 2 + √2 cm. What is its area?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 1 cm² (b) 0.5 cm² (c) 2 cm² (d) 3 cm²

Q19 The area of a rhombus is 150 cm². If the ratio of its diagonals is 3:4, find its perimeter.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 40 cm (b) 50 cm (c) 60 cm (d) 80 cm

Q20 A wheel of diameter 105 cm makes 40 revolutions. Find the distance covered (in meters). (Take π = 22/7)

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 184 m (b) 208 m (c) 132 m (d) 216 m

Q21 The perimeter of an equilateral triangle is 36 cm. Find the area of the triangle.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) $46\sqrt{3}$ cm² (b) $37\sqrt{3}$ cm² (c) $36\sqrt{3}$ cm² (d) $26\sqrt{3}$ cm

Q22 The area of a rectangle with a breadth of 9 cm is equal to the area of a square whose side measures 12 cm. Determine the length of the rectangle.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 21 cm (b) 11 cm (c) 18 cm (d) 16 cm

Q23 The ratio of the areas of two concentric circles is 25: 16. If the width of the ring formed is 9 m, find the radius of the smaller circle.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 20 m (b) 45 m (c) 28 m (d) 36 m

Q24 The perimeter of a right-angled triangle is 60 cm, and its hypotenuse is 25 cm. What is its area?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 160 cm² (b) 150 cm² (c) 80 cm² (d) 140 cm²

Q25 The diagonal of a rectangle is 17 cm, and its perimeter is 46 cm. What is the area of the rectangle?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 112 cm² (b) 120 cm² (c) 132 cm² (d) 150 cm²

ANSWER KEY · Mock Set 01

1 (b)	2 (b)	3 (c)	4 (b)	5 (a)
6 (c)	7 (a)	8 (b)	9 (d)	10 (a)
11 (c)	12 (a)	13 (d)	14 (c)	15 (d)
16 (a)	17 (c)	18 (b)	19 (b)	20 (c)
21 (c)	22 (d)	23 (d)	24 (b)	25 (b)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (b)

616 cm²

r = 14 cm ⇒ क्षेत्रफल = 22/7 × 14 × 14 = **616 cm²**।

Q2 Ans (b)

$661.5\sqrt{3}$ cm² cm²

वृत्त में बने regular hexagon की भुजा = r = 21 ⇒ क्षेत्रफल = 6 × (√3/4) × 21² = **661.5√3 cm²**।

Q3 Ans (c)

1:1

चाप ∝ r × θ ⇒ 15 × 60 : 20 × 45 = 900 : 900 = **1 : 1**।

Q4 Ans (b)

200 cm²

क्षेत्रफल = ½ × विकर्ण × (लंबों का योग) = ½ × 20 × (9 + 11) = **200 cm²**।

Q5 Ans (a)

1.75 radians

परिमाप = 2r + rθ ⇒ 24 + 12θ = 45 ⇒ θ = 21/12 = **1.75 radian**।

Q6 Ans (c)

11 cm

πr²/4 = 121π/4 ⇒ r² = 121 ⇒ **r = 11 cm**।

Q7 Ans (a)

$150\sqrt{5}$ cm²

भुजाएँ 20, 35, 35 ⇒ s = 45 ⇒ क्षेत्रफल = √(45 × 25 × 10 × 10) = √112500 = **150√5 cm²**।

Q8 Ans (b)

14 m

पथ का क्षेत्रफल = (a + 5)² - a² = 10a + 25 = 165 ⇒ **a = 14 m**।

Q9 Ans (d)

24 cm

½ × 15 × h = 180 ⇒ **h = 24 cm**।

Q10 Ans (a)

Rs6000

परिमाप = 6 × 20 = 120 m ⇒ लागत = 120 × 50 = **Rs 6000**।

Q11 Ans (c)

22 cm

चाप = 2 × 22/7 × 28 × 45/360 = **22 cm**।

Q12 Ans (a)

21 cm

2πr = 132 ⇒ r = 132 × 7/44 = **21 cm**।

Q13 Ans (d)

$294\sqrt{3}$ cm²

भुजा = 14 ⇒ 6 × (√3/4) × 196 = **294√3 cm²**।

Q14 Ans (c)

1:1

चाप ∝ rθ ⇒ 3 × 75 : 5 × 45 = 225 : 225 = **1 : 1**।

Q15 Ans (d)

$\frac{392\sqrt{3}}{3}$ cm²

वर्ग की भुजा 14 ⇒ परिमाप 56 ⇒ hexagon की भुजा = 28/3।
क्षेत्रफल = (3√3/2) × (28/3)² = (3√3/2) × 784/9 = **392√3/3 cm²**।

Q16 Ans (a)

196 cm²

वर्ग की भुजा = व्यास = 14 ⇒ क्षेत्रफल = **196 cm²**।

Q17 **Ans (c)**

$\frac{1}{2}$ m

$\pi r^2/4 = \pi/16 \Rightarrow r^2 = 1/4 \Rightarrow$ **r = 1/2 m**।

Q18 **Ans (b)**

0.5 cm²

भुजाएँ a, a, a√2 ⇒ $a(2 + \sqrt{2}) = 2 + \sqrt{2} \Rightarrow a = 1$ ⇒ क्षेत्रफल = ½ × 1 × 1 = **0.5 cm²**।

Q19 **Ans (b)**

50 cm

विकर्ण 3k, 4k ⇒ $\frac{1}{2} \times 12k^2 = 150 \Rightarrow k = 5$ ⇒ विकर्ण 15, 20 ⇒ भुजा = $\sqrt{(7.5^2 + 10^2)} = 12.5$।

परिमाप = 4 × 12.5 = **50 cm**।

Q20 **Ans (c)**

132 m

दूरी = 40 × π × 1.05 = 40 × 22/7 × 1.05 = **132 m**।

Q21 **Ans (c)**

$36\sqrt{3}$ cm²

भुजा = 12 ⇒ क्षेत्रफल = (√3/4) × 144 = **36√3 cm²**।

Q22 **Ans (d)**

16 cm

$9 \times l = 12^2 = 144 \Rightarrow$ **l = 16 cm**।

Q23 **Ans (d)**

36 m

क्षेत्रफल 25 : 16 ⇒ त्रिज्या 5 : 4 ⇒ अंतर 1 भाग = 9 ⇒ छोटी त्रिज्या = **36 m**।

Q24 **Ans (b)**

150 cm²

$a + b = 35$, $a^2 + b^2 = 625 \Rightarrow 2ab = 1225 - 625 = 600 \Rightarrow$ क्षेत्रफल = ab/2 = **150 cm²**।

Q25 **Ans (b)**

120 cm²

$l + b = 23$, $l^2 + b^2 = 289 \Rightarrow 2lb = 529 - 289 = 240 \Rightarrow$ क्षेत्रफल = **120 cm²**।

Mock Set 02 Q26–Q50 · 8 Oct → 13 Oct

TOPIC · Mensuration (2D) (2/3)

Q26 **A floor is covered by regular hexagonal tiles of side 12 cm. If 5% are broken during installation, and total area to be covered is 12 m², approximately how many tiles are needed?**

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 343 tiles (b) 338 tiles (c) 318 tiles (d) 323 tiles

Q27 **The area of a quadrant of a circle is $\frac{49\pi}{4}$ cm². What is the radius of the circle?**

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 9 cm (b) 4 cm (c) 7 cm (d) 6 cm

Q28 **A swimming pool is designed with a regular octagonal floor plan of side length 20 m. The floor of the pool is to be tiled using tiles that cover 0.25 m² each. Assuming no material is wasted during cutting, find the total number of tiles required (approximately). [Take √2 ≈ 1.4142]**

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 6534 (b) 7999 (c) 7726 (d) 7000

Q29 **A hall has an area of $18\sqrt{3}$ m². It is to be paved with regular hexagonal tiles of side 15 cm. If the side of each tile is doubled, how will the number of tiles required change?**

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) Becomes half (b) Becomes one-fourth
(c) Becomes one-ninth (d) Remains the same

Q30 **A circle has a radius of 35 cm. Find the length of the arc that subtends an angle of 72 degrees at the centre. (Take π = 22/7)**

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 64 cm (b) 38 cm (c) 56 cm (d) 44 cm

Q31 **A square land in Gujarat is fenced at Rs140 per metre. If the area of land is 8100 sq. m, what is the total fencing cost?**

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) Rs43,200 (b) Rs44,400 (c) Rs50,400 (d) Rs46,000

Q32 **The area of a triangle is 48 cm², and its inradius is 4 cm. What is its semiperimeter?**

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 6 cm (b) 12 cm (c) 24 cm (d) 48 cm

Q33 If the side of an equilateral triangle is doubled, what happens to its area?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) Increases 2 times (b) Increases 3 times
(c) Increases 4 times (d) Increases 6 times

Q34 In a trapezium, the parallel sides are 25 cm and 10 cm. If the non-parallel sides are 13 cm and 14 cm, find the area of the trapezium.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 192 cm² (b) 196 cm² (c) 210 cm² (d) 216 cm²

Q35 If the semi-perimeter of a triangle is 24 cm and the lengths of two sides are 18 cm and 16 cm, what is the length of the third side?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 16 cm (b) 20 cm (c) 14 cm (d) 18 cm

Q36 A regular hexagon and a square have the same perimeter. If the area of the square is 144 cm², find the exact area of the hexagon.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) $96\sqrt{3}$ cm² (b) $49\sqrt{3}$ cm² (c) $26\sqrt{3}$ cm² (d) $87\sqrt{3}$ cm

Q37 The ratio of the areas of two concentric circles is 16: 9. If the difference between their radii is 14 m, find the radius of the larger circle.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 56 m (b) 64 m (c) 42 m (d) 38 m

Q38 If the area of a triangle is $10\sqrt{3}$ cm² and two of its sides are 5 cm and 8 cm, what is the included angle?

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 30° (b) 45° (c) 60° (d) 90°

Q39 The area of a trapezium is 475 cm², and its height is 19 cm. If the parallel sides are in the ratio 2:3, find the length of the longer parallel side.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 20 cm (b) 30 cm (c) 35 cm (d) 25 cm

Q40 If the perimeter of a semicircle is 47.1 cm, what is its approximate diameter? (Take $\pi = 3.14$)

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 15.4 cm (b) 17.5 cm (c) 16.8 cm (d) 18.3 cm

Q41 The side of a regular pentagon is twice the side of a square. If the perimeter of the square is 12 cm, find the perimeter of the pentagon.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 30 cm (b) 20 cm (c) 35 cm (d) 25 cm

Q42 The area of a square is 144 cm². A circle is inscribed inside the square. What is the area of another square inscribed inside this circle?

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 36 cm² (b) 54 cm² (c) 72 cm² (d) 108 cm²

Q43 When the length of a rectangle is increased by 10%, and its breadth is reduced by 10%, how is the area affected?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) Remains same (b) Increases by 1%
(c) Decreases by 1% (d) Decreases by 2%

Q44 A scalene triangle has sides in the ratio 13:14:15. If its perimeter is 126 cm, find the length of its longest side.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 52 cm (b) 48 cm (c) 42 cm (d) 45 cm

Q45 The ratio of the radii of two concentric circles is 5: 3. If the difference between their areas is 256π sq. m, what is the radius of the smaller circle?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 20 m (b) 10 m (c) 16 m (d) 12 m

Q46 What is the length of an arc of a circle of radius 21 cm and angle 60°?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 26 cm (b) 24 cm (c) 32 cm (d) 22 cm

Q47 A regular hexagon is inscribed inside a circle of radius 10 cm. Find the area of the hexagon.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) $150\sqrt{3}$ cm² (b) $150\sqrt{5}$ cm² (c) $130\sqrt{3}$ cm² (d) $130\sqrt{5}$

Q48 When the diagonal of a square is increased by 20%, what is the percentage increase in the area of the square?

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 20% (b) 40% (c) 44% (d) 50%

Q49 A large room has an area of $24\sqrt{3}$ m². It is to be covered with regular hexagonal tiles of side 20 cm. How many full tiles are required to cover the area (ignoring gaps)?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 400 tiles (b) 435 tiles (c) 390 tiles (d) 455 tiles

Q50 If the area of a quadrant of a circle is 16π cm², find the radius of the circle.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 4 cm (b) 3 cm (c) 7 cm (d) 8 cm

ANSWER KEY · Mock Set 02

26 (b)	27 (c)	28 (c)	29 (b)	30 (d)
31 (c)	32 (b)	33 (c)	34 (b)	35 (c)
36 (a)	37 (a)	38 (c)	39 (b)	40 (d)
41 (a)	42 (c)	43 (c)	44 (d)	45 (d)
46 (d)	47 (a)	48 (c)	49 (a)	50 (d)

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (b)

338 tiles

एक tile = (3√3/2) × 12² ≈ 374.1 cm²। 12 m² = 1,20,000 cm² ⇒ ज़रूरी ≈ 320.8 tiles।

5% टूटने पर: 320.8/0.95 ≈ **338 tiles**।

Q27 Ans (c)

7 cm

πr²/4 = 49π/4 ⇒ **r = 7 cm**।

Q28 Ans (c)

7726

Regular octagon का क्षेत्रफल = 2(1 + √2)a² = 2 × 2.4142 × 400 ≈ 1931.4 m²।

Tiles = 1931.4/0.25 ≈ **7726**।

Q29 Ans (b)

Becomes one-fourth

भुजा दोगुनी ⇒ एक tile का क्षेत्रफल 4 गुना ⇒ tiles की संख्या **एक-चौथाई**।

Q30 Ans (d)

44 cm

चाप = 2 × 22/7 × 35 × 72/360 = **44 cm**।

Q31 Ans (c)

Rs50,400

भुजा = √8100 = 90 m ⇒ परिमाप 360 m ⇒ लागत = 360 × 140 = **Rs 50,400**।

Q32 Ans (b)

12 cm

क्षेत्रफल = r × s ⇒ 48 = 4s ⇒ **s = 12 cm**।

Q33 Ans (c)

Increases 4 times

क्षेत्रफल ∝ भुजा² ⇒ भुजा दोगुनी ⇒ **4 गुना**।

Q34 Ans (b)

196 cm²

समानांतर भुजाओं का अंतर 15 ⇒ 13, 14, 15 वाला त्रिभुज (क्षेत्रफल 84) ⇒ ऊँचाई = 2 × 84/15 = 11.2।

Trapezium = ½ × (25 + 10) × 11.2 = **196 cm²**।

Q35 Ans (c)

14 cm

परिमाप = 48 ⇒ तीसरी भुजा = 48 - 18 - 16 = **14 cm**।

Q36 Ans (a)

$96\sqrt{3}$ cm²

वर्ग की भुजा 12 ⇒ परिमाप 48 ⇒ hexagon की भुजा 8 ⇒ 6 × (√3/4) × 64 = **96√3 cm²**।

Q37 Ans (a)

56 m

त्रिज्या 4 : 3, अंतर 1 भाग = 14 ⇒ बड़ी = **56 m**।

Q38 Ans (c)

60°

½ × 5 × 8 × sin θ = 10√3 ⇒ sin θ = √3/2 ⇒ **θ = 60°**।

Q39 Ans (b)

30 cm

½(a + b) × 19 = 475 ⇒ a + b = 50 ⇒ 20 और 30 ⇒ लंबी भुजा **30 cm**।

Q40 Ans (d)

18.3 cm

πr + 2r = 47.1 ⇒ 5.14r = 47.1 ⇒ r ≈ 9.16 ⇒ व्यास ≈ **18.3 cm**।

Q41 **Ans (a)**

30 cm

वर्ग की भुजा 3 ⇒ pentagon की भुजा 6 ⇒ परिमाप **30 cm**।

Q42 **Ans (c)**

72 cm²

वर्ग की भुजा 12 = वृत्त का व्यास ⇒ भीतरी वर्ग का विकर्ण 12 ⇒ क्षेत्रफल = 12²/2 = **72 cm²**।

Q43 **Ans (c)**

Decreases by 1%

1.1 × 0.9 = 0.99 ⇒ क्षेत्रफल **1% घटता** है।

Q44 **Ans (d)**

45 cm

1 भाग = 126/42 = 3 ⇒ सबसे लंबी = 15 × 3 = **45 cm**।

Q45 **Ans (d)**

12 m

π(25k² - 9k²) = 256π ⇒ 16k² = 256 ⇒ k = 4 ⇒ छोटी त्रिज्या = **12 m**।

Q46 **Ans (d)**

22 cm

चाप = 2 × 22/7 × 21 × 60/360 = **22 cm**।

Q47 **Ans (a)**

$150\sqrt{3}$ cm²

6 × (√3/4) × 100 = **150√3 cm²**।

Q48 **Ans (c)**

44%

क्षेत्रफल ∝ विकर्ण² ⇒ (1.2)² = 1.44 ⇒ **44%** वृद्धि।

Q49 **Ans (a)**

400 tiles

एक tile = 6 × (√3/4) × 0.2² = 0.06√3 m² ⇒ tiles = 24√3/(0.06√3) = **400**।

Q50 **Ans (d)**

8 cm

πr²/4 = 16π ⇒ r² = 64 ⇒ **r = 8 cm**।

Mock Set 03 Q51–Q76 · 13 Oct → 28 Oct

TOPIC · Mensuration (2D) (3/3)

Q51 In an isosceles trapezium, the parallel sides are 10 cm and 22 cm, and the area is 192 cm². Find the length of the non- parallel sides.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 6 cm (b) $6\sqrt{5}$ cm (c) 3 cm (d) $3\sqrt{5}$ cm

Q52 The diagonals of a rhombus are 32 cm and 24 cm. A new rhombus is formed by joining the midpoints of the sides of the original rhombus. What is the area of the new figure?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 192 cm² (b) 384 cm² (c) 96 cm² (d) 144 cm²

Q53 An isosceles trapezium has parallel sides of lengths 18 cm and 30 cm. If the length of each non-parallel side is 10 cm, find the area of the trapezium.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 192 cm² (b) 240 cm² (c) 144 cm² (d) 288 cm²

Q54 In a triangle, two sides measure 17 cm and 10 cm, and the included angle is 30°. Find the area of the triangle.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 55.5 cm² (b) 44.5 cm² (c) 42.5 cm² (d) 32.5 cm²

Q55 A circle having a radius of 7 cm. A regular hexagon is drawn inside it. Find the area of the hexagon.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) $\frac{162\sqrt{3}}{12}$ cm² (b) $\frac{117\sqrt{3}}{2}$ cm² (c) $\frac{157\sqrt{13}}{2}$ cm² (d) $\frac{147\sqrt{3}}{2}$ cm²

Q56 The diameter of a circular wheel is 84 cm. How far (in meters) will it travel in 100 revolutions? (Take $\pi = \frac{22}{7}$)

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 234 m (b) 264 m (c) 214 m (d) 254 m

Q57 A triangular canvas frame has sides 20 m, 21 m, and 29 m. A smaller triangle is drawn inside it by connecting the midpoints of each side. What percentage of the original area is saved if only the inner triangle is used for painting?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 50% (b) 62.50% (c) 75% (d) 87.50%

Q58 The perimeter of an isosceles trapezium is 58 cm. If the non-parallel sides are each 13 cm and the height is 12 cm, find its area.

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 180 cm² (b) 192 cm² (c) 204 cm² (d) 216 cm²

Q59 An equilateral triangle is inscribed in a circle of radius 6 cm. Find the area of the triangle.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) $27\sqrt{3}$ cm² (b) $27\sqrt{7}$ cm² (c) $21\sqrt{3}$ cm² (d) $21\sqrt{7}$ cm

Q60 A wheel of diameter 1.4 m makes 250 revolutions. Find the distance travelled (in meters). (Take $\pi = \frac{22}{7}$)

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 1100 m (b) 900 m (c) 1200 m (d) 600 m

Q61 A pendulum of length 75 cm swings through an angle of 24°. What is the length of the arc traced by its bob? (Use π = 3.14)

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 25.6 cm (b) 28.4 cm (c) 31.4 cm (d) 38.6 cm

Q62 The perimeter of a rhombus is 40 cm and one of its angles is 60°. Find the area of the rhombus.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $50\sqrt{3}$ cm² (b) $25\sqrt{3}$ cm² (c) $75\sqrt{3}$ cm² (d) $60\sqrt{3}$ cm

Q63 A rhombus has a perimeter of 52 cm, and one of its diagonals measures 10 cm. Calculate the area of the rhombus.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 120 cm² (b) 130 cm² (c) 240 cm² (d) 260 cm²

Q64 A square field of side 40 m has a 2 m wide path running inside it along the boundary. What is the ratio of the area of the path to the area of the remaining field?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 19:81 (b) 21:79 (c) 36:83 (d) 44:51

Q65 The side of a square is increased by 4 cm, causing its area to increase by 80 cm². What was the original side length?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 1 cm (b) 2 cm (c) 4 cm (d) 8 cm

Q66 In a trapezium, the lengths of the parallel sides are in the ratio 3:2. If the area of the trapezium is 450 cm² and the height between the parallel sides is 15 cm, find the difference between the lengths of the parallel sides.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 12 cm (b) 15 cm (c) 18 cm (d) 24 cm

Q67 The area of a regular hexagon is made of how many equilateral triangles?

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 6 (b) 4 (c) 1 (d) 3

Q68 A rhombus has a perimeter of 104 cm and one of its diagonals measures 48 cm. A rectangle has its sides equal to the two diagonals of this rhombus. Find the area of the rectangle (in cm²).

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 1020 cm² (b) 790 cm² (c) 960 cm² (d) 857 cm²

Q69 A wire in the form of a circle of radius 21 cm is cut and bent into a rectangle whose sides are in the ratio 6 : 5. Find the area of the rectangle (Take π = 22/7).

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 1020 cm² (b) 1050 cm² (c) 1080 cm² (d) 1120 cm²

Q70 A farmer wants to fence a square plot whose area is 1225 square metres. What will be the length of each side of the plot?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 30 metres (b) 45 metres (c) 35 metres (d) 40 metres

Q71 In triangle ABC, angle A = 60°, AB = 6 cm, AC = 8 cm. What is the area of the triangle?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 12√3 cm² (b) 8√3 cm² (c) 10√3 cm² (d) 9√3 cm²

Q72 The area of an equilateral triangle is 16√3 cm². What is its side length?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 8 cm (b) 18 cm (c) 12 cm (d) 9 cm

Q73 An equilateral triangle, having a side measurement of 6 cm, forms the base of a regular right pyramid. Calculate the apothem's length for this base triangle.

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) $\sqrt{3}$ cm (b) $2\sqrt{3}$ cm (c) $3\sqrt{3}$ cm (d) $6\sqrt{3}$ cm

Q74 The sides of a triangle are in the ratio 3:4:5. If the perimeter is 36 cm, what is its area?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 54 cm² (b) 60 cm² (c) 72 cm² (d) 108 cm²

Q75 If the minute hand of a clock is 14 cm long, what area (in cm²) does it sweep in 20 minutes? (Use π = 22/7)

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 106.8 cm² (b) 154.2 cm² (c) 205.3 cm² (d) 250.7 cm²

Q76 A square courtyard is to be paved with tiles. The courtyard is inscribed inside a circular boundary of radius 26 m, so that all four corners of the square touch the circle. The contractor wants to know the exact area of the square to order tiles.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 1352 m² (b) 1333 m² (c) 1300 m² (d) 1250 m²

ANSWER KEY · Mock Set 03

51 (b)	52 (a)	53 (a)	54 (c)	55 (d)
56 (b)	57 (c)	58 (b)	59 (a)	60 (a)
61 (c)	62 (a)	63 (a)	64 (a)	65 (d)
66 (a)	67 (a)	68 (c)	69 (c)	70 (c)
71 (a)	72 (a)	73 (a)	74 (a)	75 (c)
76 (a)				

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q51 Ans (b)

$6\sqrt{5}$ cm

½ × 32 × h = 192 ⇒ h = 12। हर ओर का offset = (22 - 10)/2 = 6 ⇒ भुजा = √(144 + 36) = **6√5 cm**।

Q52 Ans (a)

192 cm²

मूल rhombus = ½ × 32 × 24 = 384। मध्य बिंदुओं से बनी आकृति (rectangle) = आधा = **192 cm²**।

Q53 Ans (a)

192 cm²

Offset = (30 - 18)/2 = 6 ⇒ h = √(100 - 36) = 8 ⇒ क्षेत्रफल = ½ × 48 × 8 = **192 cm²**।

Q54 Ans (c)

42.5 cm²

½ × 17 × 10 × sin 30° = **42.5 cm²**।

Q55 Ans (d)

$\frac{147\sqrt{3}}{2}$ **cm²**

6 × (√3/4) × 49 = **147√3/2 cm²**।

Q56 Ans (b)

264 m

100 × 22/7 × 0.84 = **264 m**।

Q57 Ans (c)

75%

मध्य बिंदुओं से बना त्रिभुज = मूल का 1/4 ⇒ बचत = **75%**।

Q58 Ans (b)

192 cm²

समानांतर भुजाओं का योग = 58 - 26 = 32 ⇒ क्षेत्रफल = ½ × 32 × 12 = **192 cm²**।

Q59 Ans (a)

$27\sqrt{3}$ **cm²**

भुजा = R√3 = 6√3 ⇒ क्षेत्रफल = (√3/4) × 108 = **27√3 cm²**।

Q60 Ans (a)

1100 m

250 × 22/7 × 1.4 = **1100 m**।

Q61 Ans (c)

31.4 cm

चाप = 2 × 3.14 × 75 × 24/360 = **31.4 cm**।

Q62 **Ans (a)**

$50\sqrt{3}$ cm²

भुजा 10 ⇒ क्षेत्रफल = a² sin 60° = **50√3 cm²**।

Q63 **Ans (a)**

120 cm²

भुजा 13, आधा विकर्ण 5 ⇒ दूसरा आधा 12 ⇒ विकर्ण 10, 24 ⇒ क्षेत्रफल = **120 cm²**।

Q64 **Ans (a)**

19:81

भीतरी भाग = 36² = 1296; पथ = 1600 - 1296 = 304 ⇒ 304 : 1296 = **19 : 81**।

Q65 **Ans (d)**

8 cm

(a + 4)² - a² = 8a + 16 = 80 ⇒ **a = 8 cm**।

Q66 **Ans (a)**

12 cm

½(a + b) × 15 = 450 ⇒ a + b = 60 ⇒ 36, 24 ⇒ अंतर **12 cm**।

Q67 **Ans (a)**

6

Regular hexagon = **6** समबाहु त्रिभुज।

Q68 **Ans (c)**

960 cm²

भुजा 26, आधा विकर्ण 24 ⇒ दूसरा आधा 10 ⇒ विकर्ण 48, 20 ⇒ rectangle = 48 × 20 = **960 cm²**।

Q69 **Ans (c)**

1080 cm²

तार = 2 × 22/7 × 21 = 132 ⇒ l + b = 66 ⇒ 36, 30 ⇒ क्षेत्रफल = **1080 cm²**।

Q70 **Ans (c)**

35 metres

√1225 = **35 m**।

Q71 **Ans (a)**

12√3 cm²

½ × 6 × 8 × sin 60° = **12√3 cm²**।

Q72 **Ans (a)**

8 cm

(√3/4)a² = 16√3 ⇒ a² = 64 ⇒ **a = 8 cm**।

Q73 **Ans (a)**

$\sqrt{3}$ cm

आधार त्रिभुज का apothem = inradius = a/(2√3) = 6/(2√3) = **√3 cm**।

Q74 **Ans (a)**

54 cm²

भुजाएँ 9, 12, 15 (समकोण) ⇒ क्षेत्रफल = ½ × 9 × 12 = **54 cm²**।

Q75 **Ans (c)**

205.3 cm²

20 मिनट = 120° ⇒ क्षेत्रफल = (1/3) × 22/7 × 196 ≈ **205.3 cm²**।

Q76 **Ans (a)**

1352 m²

वर्ग का विकर्ण = व्यास = 52 ⇒ क्षेत्रफल = 52²/2 = **1352 m²**।

CHAPTER 18

Mensuration 3D

Cube · Cuboid · Cylinder · Cone · Sphere · Prism · Pyramid

137	1	6	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Mensuration 3D

01 आयतन सूत्र
Cone ⅓πr²h, Sphere (4/3)πr³, Hemisphere (2/3)πr³, Cylinder πr²h।

02 Melting & recasting
आयतन संरक्षित रहता है: संख्या = बड़े का आयतन ÷ छोटे का आयतन।

03 TSA / CSA
Cone CSA = πrl; Hemisphere TSA = 3πr²; Cylinder TSA = 2πr(r + h)।

04 अनुपात
बराबर आयतन ⇒ h ∝ 1/r²; scaling k गुना ⇒ आयतन k³ गुना।

05 Pyramid
slant² = h² + (a/2)²; lateral edge² = h² + (a/√2)²।

Mock Set 01 Q1–Q25 · 30 Sep → 5 Oct

TOPIC · Mensuration (3D) (1/6)

Q1 A toy is in the form of a hemisphere surmounted by a cone. The radius of the hemisphere is 3 cm and the cone's height is 4 cm. Find the total volume of the toy (use π ≈ 3.14).

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 113.04 cm³ (b) 94.2 cm³ (c) 188.4 cm³ (d) 62.8 cm³

Q2 A cone has a height of 8 cm and a slant height of 10 cm. What is the volume of the cone?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 301.71 cm³ (b) 304 cm³ (c) 305.75 cm³ (d) 308.76 cm³

Q3 A pyramid has a rectangular base with dimensions 6 cm by 8 cm. If the height of the pyramid is 1.5 times the longer side of the base, calculate the volume of the pyramid.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 292 cm³ (b) 262 cm³ (c) 252 cm³ (d) 192 cm³

Q4 A rectangular box has dimensions 150 cm × 60 cm × 30 cm. Small cubes of side 5 cm are packed inside without leaving space. How many cubes can be packed?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 2160 (b) 2250 (c) 1730 (d) 1400

Q5 The base of a prism is a right-angled isosceles triangle whose hypotenuse is $5\sqrt{2}$ cm. If the height of the prism is 10 cm, find the volume of the prism.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 110 cm³ (b) 125 cm³ (c) 150 cm³ (d) 135 cm³

Q6 If the radius of a right circular cylinder is tripled and the height is one-third, then find the ratio between the new volume and the previous volume of the cylinder?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 1 : 3 (b) 9 : 1 (c) 3 : 1 (d) 1 : 9

Q7 A hemispherical bowl is made of steel, 1 cm thick. The inner radius of the bowl is 4 cm. What will be the outer curved surface area?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 137.14 cm² (b) 237.14 cm² (c) 257.14 cm² (d) 157.14 cm²

Q8 If all edges of a rectangular parallelepiped are equal, it becomes a:

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) Sphere (b) Cube (c) Cylinder (d) Cone

Q9 The heights of two cones are in the ratio 1:3, and the radii of their bases are in the ratio 3:1. What is the ratio of their volumes?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 3 : 4 (b) 4 : 3 (c) 3 : 1 (d) 2 : 3

Q10 A hemispherical brass bowl has an inner diameter of 28 cm. If the inside of the bowl is to be painted at the rate of Rs30 per cm², what will be the total cost of painting the inner curved surface?

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) Rs39960 (b) Rs36960 (c) Rs26960 (d) Rs46520

Q11 A right prism has a hexagonal base with an area of 90 cm². The height of the prism is 20 cm. Find the volume.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 1800 cm³ (b) 2000 cm³ (c) 2200 cm³ (d) 2500 cm³

Q12 The volume of a cone is 588π cm³ and its height is 7 cm. Find the radius of its base.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) $3\sqrt{7}$ cm (b) $6\sqrt{7}$ cm (c) $2\sqrt{7}$ cm (d) $8\sqrt{7}$ cm

Q13 If the ratio of the volumes of two spheres is 64 : 125, what is the ratio of their total surface areas?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 4:5 (b) 6:5 (c) 11:24 (d) 16:25

Q14 If the volume of the sphere is $697\frac{4}{21}$ cm³ then find the radius of the sphere.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 6.5 cm (b) 5.8 cm (c) 5.5 cm (d) 4.5 cm

Q15 A right prism has a base perimeter of 20 cm and height 7 cm. Find the lateral surface area.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 140 cm² (b) 150 cm² (c) 160 cm² (d) 170 cm²

Q16 What is the total surface area of a hemisphere whose curved surface area is 536 cm²?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 814 cm² (b) 914 cm² (c) 704 cm² (d) 804 cm²

Q17 A cylinder has a base diameter of 20 cm and a height of 14 cm. What is its volume?

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 4400π cm³ (b) 2800π cm³ (c) 2200π cm³ (d) 1400π cm³

Q18 The height of a right circular cone is 9 cm and its slant height is 15 cm. Find its curved surface area.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 150π cm² (b) 170π cm² (c) 130π cm² (d) 180π cm²

Q19 A sphere has a volume of 512π cm³. By what percentage must its radius be increased for the volume to become 2048π cm³?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 59% (b) 100% (c) 150% (d) 200%

Q20 The volume of a right circular cone with a height of 27 cm is 81π cm³. What is the diameter of its base?

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 8 cm (b) 16 cm (c) 7 cm (d) 6 cm

Q21 Find the volume of a triangular pyramid whose base has sides 5 cm, 5 cm, and 6 cm, and whose height is 8 cm.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 16 cm³ (b) 18 cm³ (c) 10 cm³ (d) 32 cm³

Q22 The radius of a cylinder is increased by 20%, height decreased by 10%. Find approximate percentage change in volume.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 25.6% increase (b) 29.6% increase
(c) 18% decrease (d) 12% decrease

Q23 A regular square pyramid having a base side length of 18 m. If its total surface area is 864 m², and its slant height is 15 m, find the height of the pyramid.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 8 m (b) 10 m (c) 12 m (d) 14 m

Q24 A regular square pyramid has a volume of 384 cm³ and its height-to-base-edge ratio is 2:3. Find the radius of the sphere inscribed within it.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 3 cm (b) 4 cm (c) 5 cm (d) 10 cm

Q25 A right prism has a square base of side s cm and height h cm. If the volume is 256 cm³ and height is double the side length, find s.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) $4\sqrt[3]{2}$ cm (b) $12\sqrt[3]{2}$ cm (c) $2\sqrt[3]{2}$ cm (d) $5\sqrt{5}$ cm

ANSWER KEY · Mock Set 01

1 (b)	2 (a)	3 (d)	4 (a)	5 (b)
6 (c)	7 (d)	8 (b)	9 (c)	10 (b)
11 (a)	12 (b)	13 (d)	14 (c)	15 (a)
16 (d)	17 (d)	18 (d)	19 (a)	20 (d)
21 (d)	22 (b)	23 (c)	24 (a)	25 (a)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (b)

94.2 cm³

अर्धगोला = (2/3)π × 27 = 18π; शंकु = (1/3)π × 9 × 4 = 12π ⇒ कुल = 30π = 30 × 3.14 = **94.2 cm³**।

Q2 Ans (a)

301.71 cm³

r = √(10² − 8²) = 6 ⇒ V = (1/3)π × 36 × 8 = 96π ≈ **301.71 cm³**।

Q3 Ans (d)

192 cm³

h = 1.5 × 8 = 12 ⇒ V = (1/3) × 6 × 8 × 12 = **192 cm³**।

Q4 Ans (a)

2160

(150/5) × (60/5) × (30/5) = 30 × 12 × 6 = **2160**।

Q5 Ans (b)

125 cm³

कर्ण 5√2 ⇒ भुजाएँ 5, 5 ⇒ आधार = 12.5 ⇒ V = 12.5 × 10 = **125 cm³**।

Q6 Ans (c)

3 : 1

V ∝ r²h ⇒ 9 × 1/3 = 3 ⇒ **3 : 1**।

Q7 Ans (d)

157.14 cm²

बाहरी त्रिज्या = 5 ⇒ बाहरी वक्र पृष्ठ = 2π × 25 = 2 × 22/7 × 25 ≈ **157.14 cm²**।

Q8 Ans (b)

Cube

सभी किनारे बराबर ⇒ **Cube**।

Q9 Ans (c)

3 : 1

V ∝ r²h ⇒ 9 × 1 : 1 × 3 = **3 : 1**।

Q10 Ans (b)

Rs36960

r = 14 ⇒ वक्र पृष्ठ = 2πr² = 1232 cm² ⇒ लागत = 1232 × 30 = **Rs 36,960**।

Q11 Ans (a)

1800 cm³

V = आधार × ऊँचाई = 90 × 20 = **1800 cm³**।

Q12 Ans (b)

$6\sqrt{7}$ cm

(1/3)πr² × 7 = 588π ⇒ r² = 252 ⇒ **r = 6√7 cm**।

Q13 Ans (d)

16:25

आयतन 64 : 125 ⇒ त्रिज्या 4 : 5 ⇒ पृष्ठ 16 : 25 ⇒ **16 : 25**।

Q14 Ans (c)

5.5 cm

697 4/21 = 14641/21 = (4/3)(22/7)r³ = (88/21)r³ ⇒ r³ = 166.375 ⇒ **r = 5.5 cm**।

Q15 Ans (a)

140 cm²

Lateral area = परिमाप × ऊँचाई = 20 × 7 = **140 cm²**।

Q16 **Ans (d)**

804 cm²

$2\pi r^2 = 536 \Rightarrow \pi r^2 = 268 \Rightarrow$ TSA $= 3\pi r^2 =$ **804 cm²**।

Q17 **Ans (d)**

1400π cm³

$r = 10 \Rightarrow V = \pi \times 100 \times 14 =$ **1400π cm³**।

Q18 **Ans (d)**

180π cm²

$r = \sqrt{(15^2 - 9^2)} = 12 \Rightarrow$ CSA $= \pi \times 12 \times 15 =$ **180π cm²**।

Q19 **Ans (a)**

59%

आयतन 4 गुना ⇒ त्रिज्या $\sqrt[3]{4} \approx 1.587$ गुना ⇒ लगभग **59%** वृद्धि।

Q20 **Ans (d)**

6 cm

$(1/3)\pi r^2 \times 27 = 81\pi \Rightarrow r^2 = 9 \Rightarrow r = 3 \Rightarrow$ व्यास = **6 cm**।

Q21 **Ans (d)**

32 cm³

आधार (5, 5, 6) की ऊँचाई = 4 ⇒ आधार क्षेत्रफल = 12 ⇒ $V = (1/3) \times 12 \times 8 =$ **32 cm³**।

Q22 **Ans (b)**

29.6% increase

$1.2^2 \times 0.9 = 1.296 \Rightarrow$ **29.6%** वृद्धि।

Q23 **Ans (c)**

12 m

आधी भुजा 9, slant height 15 ⇒ ऊँचाई $= \sqrt{(225 - 81)} =$ **12 m**।

Q24 **Ans (a)**

3 cm

$h = 2a/3 \Rightarrow (1/3)a^2 \times 2a/3 = 384 \Rightarrow a^3 = 1728 \Rightarrow a = 12, h = 8$
$\Rightarrow$ slant $= \sqrt{(64 + 36)} = 10$।
TSA $= 144 + 4 \times ½ \times 12 \times 10 = 384 \Rightarrow$ inscribed sphere की $r = 3V/\text{TSA} = 1152/384 =$ **3 cm**।

Q25 **Ans (a)**

$4\sqrt[3]{2}$ cm

$s^2 \times 2s = 256 \Rightarrow s^3 = 128 \Rightarrow$ **$s = 4\sqrt[3]{2}$ cm**।

Mock Set 02 Q26–Q50 · 6 Oct → 8 Oct

TOPIC · Mensuration (3D) (2/6)

Q26 A right prism has a triangular base with sides 3 cm, 4 cm, and 5 cm. If the height of the prism is 6 cm, what is its volume?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 36 cm³ (b) 48 cm³ (c) 54 cm³ (d) 60 cm³

Q27 A cone has a volume of 192π cm³ and a height of 12 cm. Find the radius of its base.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) $4\sqrt{3}$ cm (b) $2\sqrt{3}$ cm (c) $5\sqrt{3}$ cm (d) $6\sqrt{3}$ cm

Q28 Three solid metallic spheres of radii 4 cm, 3 cm, and 5 cm are melted to form a single large sphere. What is the radius of the new sphere?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 3 cm (b) 6 cm (c) 8 cm (d) 9 cm

Q29 What is the volume of a sphere whose diameter is 56 cm?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 92849.33 cm³ (b) 86989.33 cm³
(c) 81989.33 cm³ (d) 91989.33 cm³

Q30 The space diagonal of a cuboid with dimensions 3 cm, 4 cm, and 12 cm is:

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 13 cm (b) 14 cm (c) 11 cm (d) 5 cm

Q31 What is the curved surface area of a cone with a radius of 7 cm and a slant height of 20 cm?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 520 cm² (b) 304 cm² (c) 340 cm² (d) 440 cm²

Q32 The volume of a hemispherical bowl is 718⅔ cm³. A sphere is dropped into it such that the sphere's diameter is equal to the bowl's diameter. How much volume of the sphere remains outside the bowl? (Use π = 22/7)

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 811⅓ cm³ (b) 820⅓ cm³ (c) 718⅔ cm³ (d) 732⅓ cm³

Q33 A box is 80 cm × 64 cm × 48 cm. Find how many cubes of side 8 cm can be arranged inside without gaps.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 480 (b) 370 (c) 530 (d) 250

Q34 The base of a prism is a right-angled isosceles triangle whose hypotenuse is $4\sqrt{2}$ cm. If the height of the prism is 15 cm, find the volume of the prism.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 120 cm³ (b) 144 cm³ (c) 96 cm³ (d) 112 cm³

Q35 The radius of a cylinder is increased by 25% and its height is decreased by 20%. Find the percentage change in its volume.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 15% decrease (b) 25% increase
(c) 10% increase (d) 20% decrease

Q36 The base area of a right prism is 72 cm² and height is 15 cm. Find volume.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 1000 cm³ (b) 1080 cm³ (c) 1100 cm³ (d) 1150 cm³

Q37 A solid cylinder is melted and reshaped into 4 identical smaller cylinders. What will be the volume of each of the smaller cylinders?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 1/2 original (b) 1/4 original
(c) same as original (d) 1/3 original

Q38 A cone has a volume of 300π cm³ and a height of 9 cm. Find the radius of its base.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 6 cm (b) 15 cm (c) 18 cm (d) 10 cm

Q39 A spherical iron ball of radius 3 cm is dropped into a cylindrical tub of radius 4 cm containing water. By how much will the water level rise?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 1.25 cm (b) 2.25 cm (c) 3.78 cm (d) 5.78 cm

Q40 A solid metallic sphere of radius 3 cm is melted and recast into three smaller spherical balls. The radii of two of these balls are 2 cm and 1.5 cm, respectively. What is the surface area of the third ball?

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 33π cm² (b) 45π cm² (c) 35π cm² (d) 25π cm²

Q41 A right prism has a hexagonal base with an area of 90 cm². The height of the prism is 20 cm. Find the volume.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 1800 cm³ (b) 2000 cm³ (c) 2200 cm³ (d) 2500 cm³

Q42 A cone has a volume of 450π cm³ and a height of 6 cm. Find the radius of its base.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 15 cm (b) 13 cm (c) 19 cm (d) 18 cm

Q43 A solid metallic cone of radius 6 cm and height 12 cm is melted and recast into small solid spheres of radius 1 cm. How many such spheres can be made?

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 86 (b) 93 (c) 102 (d) 108

Q44 A hemispherical dome has a diameter of 7 meters. If the cost of painting is Rs. 500 per square meter, what will be the total cost to paint the dome?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) Rs. 38500 (b) Rs. 39500 (c) Rs. 40500 (d) Rs. 41500

Q45 The height of a cone is 27 cm, and its volume is 900π cm³. What is the radius of its base?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 12 cm (b) 9 cm (c) 11 cm (d) 10 cm

Q46 A cone's height is 3 times its radius. Express total surface area in terms of radius.

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) $\pi r^2(1 + \sqrt{10})$ (b) $\pi r^2(2 + \sqrt{3})$
(c) $\pi r^2(3 + \sqrt{5})$ (d) $\pi r^2(1 + \sqrt{5})$

Q47 A metal pipe is 77 cm long. The inner diameter of a cross- section is 4 cm, and the outer diameter is 4.4 cm. What is the total surface area of the pipe? (Use π = 22/7)

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 2035 cm² (b) 2038 cm² (c) 2040 cm² (d) 2025 cm²

Q48 A regular square pyramid is cut by a plane parallel to its base. The cut is made at a height of 4 cm from the vertex. The original height of the pyramid was 10 cm. If the area of the base of the original pyramid (which is also the larger base of the frustum) is 100 cm², find the volume of the original pyramid.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 266.67 cm³ (b) 333.33 cm³ (c) 400 cm³ (d) 450 cm³

Q49 A right prism has total surface area 1400 cm². Its base is a rectangle 20 cm × 15 cm. Find the height.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 21.52 cm (b) 11.42 cm (c) 19.79 cm (d) 17.67 cm

Q50 A regular square pyramid has a base side of 8 cm and a slant height of 10 cm. Find its lateral surface area in square cm.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 140 (b) 170 (c) 120 (d) 160

ANSWER KEY · Mock Set 02

26 (a)	27 (a)	28 (b)	29 (d)	30 (a)
31 (d)	32 (c)	33 (a)	34 (a)	35 (b)
36 (b)	37 (b)	38 (d)	39 (b)	40 (d)
41 (a)	42 (a)	43 (d)	44 (a)	45 (d)
46 (a)	47 (b)	48 (b)	49 (b)	50 (d)

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (a)

36 cm³

3-4-5 का क्षेत्रफल = 6 ⇒ V = 6 × 6 = **36 cm³**।

Q27 Ans (a)

$4\sqrt{3}$ cm

(1/3)πr² × 12 = 192π ⇒ r² = 48 ⇒ **r = 4√3 cm**।

Q28 Ans (b)

6 cm

R³ = 4³ + 3³ + 5³ = 64 + 27 + 125 = 216 ⇒ **R = 6 cm**।

Q29 Ans (d)

91989.33 cm³

r = 28 ⇒ V = (4/3)(22/7)(28)³ ≈ **91989.33 cm³**।

Q30 Ans (a)

13 cm

√(3² + 4² + 12²) = √169 = **13 cm**।

Q31 Ans (d)

440 cm²

CSA = πrl = 22/7 × 7 × 20 = **440 cm²**।

Q32 Ans (c)

718⅔ cm³

गोले का आयतन = दो अर्धगोले = 2 × 718⅔ ⇒ बाहर बचा भाग = **718⅔ cm³**।

Q33 Ans (a)

480

(80/8) × (64/8) × (48/8) = 10 × 8 × 6 = **480**।

Q34 Ans (a)

120 cm³

भुजाएँ 4, 4 ⇒ आधार = 8 ⇒ V = 8 × 15 = **120 cm³**।

Q35 Ans (b)

25% increase

1.25² × 0.8 = 1.25 ⇒ **25% वृद्धि**।

Q36 Ans (b)

1080 cm³

72 × 15 = **1080 cm³**।

Q37 Ans (b)

1/4 original

आयतन बराबर बँटेगा ⇒ हर एक **1/4 original**।

Q38 Ans (d)

10 cm

(1/3)πr² × 9 = 300π ⇒ r² = 100 ⇒ **r = 10 cm**।

Q39 Ans (b)

2.25 cm

(4/3)π × 27 = π × 16 × h ⇒ h = 36/16 = **2.25 cm**।

Q40 Ans (d)

25π cm²

3³ = 2³ + 1.5³ + r³ ⇒ r³ = 27 - 8 - 3.375 = 15.625 ⇒ r = 2.5 ⇒ पृष्ठ = 4π × 6.25 = **25π cm²**।

Q41 **Ans (a)**

1800 cm³

90 × 20 = **1800 cm³**।

Q42 **Ans (a)**

15 cm

(1/3)πr² × 6 = 450π ⇒ r² = 225 ⇒ **r = 15 cm**।

Q43 **Ans (d)**

108

शंकु = (1/3)π × 36 × 12 = 144π; एक गोला = (4/3)π ⇒ संख्या = **108**।

Q44 **Ans (a)**

Rs. 38500

r = 3.5 ⇒ वक्र पृष्ठ = 2 × 22/7 × 12.25 = 77 m² ⇒ लागत = 77 × 500 = **Rs 38,500**।

Q45 **Ans (d)**

10 cm

(1/3)πr² × 27 = 900π ⇒ r² = 100 ⇒ **r = 10 cm**।

Q46 **Ans (a)**

πr²(1 + √10)

h = 3r ⇒ l = r√10 ⇒ TSA = πr² + πr × r√10 = **πr²(1 + √10)**।

Q47 **Ans (b)**

2038 cm²

R = 2.2, r = 2। पृष्ठ = 2π(R + r)h + 2π(R² − r²) = 2 × 22/7 × 4.2 × 77 + 2 × 22/7 × 0.84 = 2032.8 + 5.28 ≈ **2038 cm²**।

Q48 **Ans (b)**

333.33 cm³

V = (1/3) × 100 × 10 ≈ **333.33 cm³**।

Q49 **Ans (b)**

11.42 cm

2 × 300 + (2 × 35)h = 1400 ⇒ 70h = 800 ⇒ h ≈ **11.42 cm**।

Q50 **Ans (d)**

160

4 × ½ × 8 × 10 = **160 cm²**।

Mock Set 03 Q51–Q75 · 9 Oct → 13 Oct

TOPIC · Mensuration (3D) (3/6)

Q51 The base of a right prism is a triangle with area 24 cm². Prism height is 10 cm. Volume?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 220 cm³ (b) 240 cm³ (c) 260 cm³ (d) 280 cm³

Q52 A closed cylindrical tank has radius 5 m and height 8 m. What is its total surface area?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 440π m² (b) 130π m² (c) 1300π m² (d) 130 m²

Q53 The height of a right circular cone is 7 cm and its slant height is 25 cm. Find its curved surface area.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 720π cm² (b) 650π cm² (c) 600π cm² (d) 700π cm²

Q54 If a sphere of radius r causes a water level rise of h in a cylinder of radius R, what is the relationship between r, R, and h?

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) $\frac{4}{3}r^3 = R^2h$ (b) $r^3 = R^2h$ (c) $\frac{2}{3}r^3 = 2R^2h$ (d) $r^3 = 4R^2$

Q55 A sphere of radius 'R' has a surface area equal to the curved surface area of a hemisphere with radius 'r'. Find the ratio of $\frac{R}{r}$.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) $\frac{1}{\sqrt{3}}$ (b) $\frac{1}{\sqrt{2}}$ (c) $\frac{2}{\sqrt{3}}$ (d) $\frac{3}{\sqrt{2}}$

Q56 The base of a right prism is a triangle with sides 5 cm, 12 cm, and 13 cm. The height of the prism is 9 cm. Find the lateral surface area.

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 270 cm² (b) 380 cm² (c) 420 cm² (d) 440 cm²

Q57 A conical tent of radius 7 m and height 24 m is to be covered using cloth of width 4 m. Find the approximate length of cloth required. Take (π = 22/7)

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 138 m (b) 118 m (c) 128 m (d) 148 m

Q58 A solid sphere of radius 10 cm is melted and recast into small cones, each with a radius of 2.5 cm and a height of 8 cm. How many cones can be formed?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 20 (b) 40 (c) 60 (d) 80

Q59 A solid regular hexagonal prism has a base side length of 5 m and a height of 12 m. All of its outer surfaces (including the top and bottom bases) are painted at a rate of Rs. 20 per m². Find the total painting cost (approximately). [Take $\sqrt{3} \approx 1.732$]

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) Rs. 9798 (b) Rs. 8342 (c) Rs. 9000 (d) Rs. 8073

Q60 A cuboidal container can hold 48 liters of liquid. The height of the container is $\frac{2}{3}$ of its length, and the breadth is $\frac{1}{2}$ of the height. Find the length (in cm) of the container.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 35 cm (b) 60 cm (c) 75 cm (d) 50 cm

Q61 If the height of a prism with a triangular base is tripled and the area of the base is reduced to one-third, find the change in the volume.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) Increases 3 times (b) Decreases 3 times
(c) Increases 9 times (d) Remains the same

Q62 The radius of a cylinder is decreased by 20% while its height is increased by 25%. What is the percentage change in its volume?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 10% decrease (b) 25% decrease
(c) 15% decrease (d) 20% decrease

Q63 If the volume of a right prism is 150 cm³ and the height is 5 cm, its base area is:

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 35 cm² (b) 45 cm² (c) 30 cm² (d) 50 cm²

Q64 Calculate the volume of a cylinder whose circular base area measures 154 cm² and whose height is 20 cm.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 3080 cm³ (b) 2580 cm³ (c) 2480 cm³ (d) 2180 cm³

Q65 The height of a right circular cone is 15 cm and its slant height is 17 cm. Find the curved surface area of the cone.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 149π cm² (b) 120π cm² (c) 136π cm² (d) 125π cm²

Q66 The radius of a sphere is increased by 50%. By what percentage does its volume increase?

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 154.5% (b) 165.5% (c) 237.5% (d) 254.5%

Q67 A sphere of radius 6 cm is cut into two identical hemispheres. What is the volume of one hemisphere?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 72π cm³ (b) 108π cm³ (c) 144π cm³ (d) 72 cm³

Q68 Find the total surface area of a right circular cone with a radius of 3 cm and a height of 4 cm.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 68.42 cm² (b) 76 cm² (c) 75.42 cm² (d) 78.42 cm²

Q69 A conical tent with a slant height of 25 cm and a base radius of 7 cm is covered with canvas only on its curved surface. If the cost of canvas is Rs2.50 per cm², calculate the total cost to cover the tent.

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) Rs1275 (b) Rs1250 (c) Rs1375 (d) Rs1350

Q70 A solid metallic hemisphere of radius 6.3 cm is melted and recast into a right circular cylinder of radius 9 cm. What is the height of the cylinder?

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 1.058 cm (b) 2.058 cm (c) 2.58 cm (d) 3.058 cm

Q71 The base of a right prism is a rhombus with diagonals 8 cm and 10 cm. The height of the prism is 12 cm. Find the volume.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 384 cm³ (b) 420 cm³ (c) 480 cm³ (d) 540 cm³

Q72 A cone-shaped tank has a radius of 5 cm and a slant height of 14 cm. If the cost of painting is Rs18 per cm², find the approximate cost to paint the tank. ($\pi = 3.14$)

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) Rs6,000 (b) Rs6,369 (c) Rs5,369 (d) Rs5,400

Q73 If a solid sphere of radius 9 cm is melted and recast into a cylinder with a base radius of 3 cm, what will be the height of the cylinder?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 102 cm (b) 108 cm (c) 254 cm (d) 274 cm

Q74 A regular hexagonal prism has a base side length of 5 m and a height of 10 m. A regular hexagonal pyramid with a height of 4 m shares the top base of the prism. Find the total volume of the resulting composite solid.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) $425\sqrt{3}$ m³ (b) $424\sqrt{2}$ m³ (c) $354\sqrt{2}$ m³ (d) $368\sqrt{3}$ m

Q75 A solid cube with a surface area of 1500 cm² is melted to form smaller cubes, each with a surface area of 60 cm². Find the number of smaller cubes.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 110 (b) 150 (c) 134 (d) 125

ANSWER KEY · Mock Set 03

51 (b)	52 (b)	53 (c)	54 (a)	55 (b)
56 (a)	57 (a)	58 (d)	59 (a)	60 (b)
61 (d)	62 (d)	63 (c)	64 (a)	65 (c)
66 (c)	67 (c)	68 (c)	69 (c)	70 (b)
71 (c)	72 (c)	73 (b)	74 (a)	75 (d)

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q51 Ans (b)

240 cm³

24 × 10 = **240 cm³**।

Q52 Ans (b)

130π m²

TSA = 2πr(r + h) = 10π × 13 = **130π m²**।

Q53 Ans (c)

600π cm²

r = √(625 - 49) = 24 ⇒ CSA = π × 24 × 25 = **600π cm²**।

Q54 Ans (a)

$\frac{4}{3}r^3 = R^2h$

गोले का आयतन = उठे पानी का आयतन ⇒ (4/3)πr³ = πR²h ⇒ **(4/3)r³ = R²h**।

Q55 Ans (b)

$\frac{1}{\sqrt{2}}$

4πR² = 2πr² ⇒ R²/r² = 1/2 ⇒ **R/r = 1/√2**।

Q56 Ans (a)

270 cm²

परिमाप = 30 ⇒ lateral = 30 × 9 = **270 cm²**।

Q57 Ans (a)

138 m

l = √(49 + 576) = 25 ⇒ CSA = 22/7 × 7 × 25 = 550 m² ⇒ लंबाई = 550/4 ≈ **138 m**।

Q58 Ans (d)

80

गोला = (4/3)π × 1000; शंकु = (1/3)π × 6.25 × 8 = 50π/3 ⇒ (4000/3)/(50/3) = **80**।

Q59 Ans (a)

Rs. 9798

Lateral = 6 × 5 × 12 = 360; दो आधार = 2 × (3√3/2) × 25 = 75√3 ≈ 129.9 ⇒ कुल ≈ 489.9 m²।

लागत ≈ 489.9 × 20 ≈ **Rs 9798**।

Q60 Ans (b)

60 cm

h = 2l/3, b = h/2 = l/3 ⇒ V = l × l/3 × 2l/3 = 2l³/9 = 48000 cm³ ⇒ l³ = 216000 ⇒ **l = 60 cm**।

Q61 Ans (d)

Remains the same

V = आधार × h ⇒ (1/3) × 3 = 1 ⇒ **आयतन वही रहता है**।

Q62 Ans (d)

20% decrease

0.8² × 1.25 = 0.8 ⇒ **20% कमी**।

Q63 Ans (c)

30 cm²

150/5 = **30 cm²**।

Q64 Ans (a)

3080 cm³

154 × 20 = **3080 cm³**।

Q65 Ans (c)

136π cm²

r = √(289 - 225) = 8 ⇒ CSA = π × 8 × 17 = **136π cm²**।

Q66 **Ans (c)**

237.5%

$1.5^3 = 3.375 \Rightarrow$ **237.5%** वृद्धि।

Q67 **Ans (c)**

144π cm³

$(2/3)\pi \times 216 =$ **144π cm³**।

Q68 **Ans (c)**

75.42 cm²

$l = 5 \Rightarrow TSA = \pi r(r + l) = \pi \times 3 \times 8 = 24\pi \approx$ **75.42 cm²**।

Q69 **Ans (c)**

Rs1375

CSA = $22/7 \times 7 \times 25 = 550$ cm² ⇒ लागत = $550 \times 2.5 =$ **Rs 1375**।

Q70 **Ans (b)**

2.058 cm

$(2/3)\pi(6.3)^3 = \pi \times 81 \times h \Rightarrow h = 2 \times 250.047/243 \approx$ **2.058 cm**।

Q71 **Ans (c)**

480 cm³

Rhombus = ½ × 8 × 10 = 40 ⇒ V = 40 × 12 = **480 cm³**।

Q72 **Ans (c)**

Rs5,369

TSA = $\pi r(r + l) = 3.14 \times 5 \times 19 = 298.3$ cm² ⇒ लागत ≈ $298.3 \times 18 \approx$ **Rs 5,369**।

Q73 **Ans (b)**

108 cm

$(4/3)\pi \times 729 = \pi \times 9 \times h \Rightarrow h = 972/9 =$ **108 cm**।

Q74 **Ans (a)**

$425\sqrt{3}$ m³

Hexagon आधार = $(3\sqrt{3}/2) \times 25 = 37.5\sqrt{3}$। Prism = $375\sqrt{3}$, pyramid = $(1/3) \times 37.5\sqrt{3} \times 4 = 50\sqrt{3}$।

कुल = **$425\sqrt{3}$ m³**।

Q75 **Ans (d)**

125

भुजा अनुपात = $\sqrt{(1500/60)} = 5 \Rightarrow$ छोटे cubes = $5^3 =$ **125**।

Mock Set 04 Q76–Q100 · 13 Oct → 16 Oct

TOPIC · Mensuration (3D) (4/6)

Q76 **A right prism has a square base. If the side length of the base is increased by 10% and the height of the prism is decreased by 10%, determine the resulting change in the volume of the prism.**

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) Increases by 9.2% (b) Decreases by 9.2%
(c) Decreases by 8.9% (d) Increases by 8.9%

Q77 **Two right circular cylinders have equal volumes. If the ratio of their radii is 7: 9, find the ratio of their heights.**

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 21:29 (b) 29:21 (c) 49:81 (d) 81:49

Q78 **A solid metallic cube with a surface area of 96 cm² is melted to form smaller cubes with a surface area of 24 cm² each. Find the number of smaller cubes.**

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 14 (b) 6 (c) 18 (d) 8

Q79 **The base of a right prism is an isosceles triangle whose equal sides are 10 cm each, and the unequal base side is 12 cm. If the ratio of the numerical value of its total surface area to its volume is 2 : 1, find the altitude of the prism (in cm).**

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 0.5 cm (b) 1 cm (c) 1.5 cm (d) 2 cm

Q80 **Two right circular cylinders have equal volumes. If the ratio of their heights is 9: 16, find the ratio of their radii.**

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 3:4 (b) 2:3 (c) 4:3 (d) 3:2

Q81 **A right prism has base perimeter 18 cm and height 5 cm. Lateral surface area?**

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 80 cm² (b) 85 cm² (c) 90 cm² (d) 95 cm²

Q82 **Given a cylinder with a diameter of 14 cm (so radius = 7 cm) and a height of 5 cm, what is its total surface area?**

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 748 cm² (b) 528 cm² (c) 616 cm² (d) 572 cm²

Q83 A cone has height 8 cm and volume 96π cm³. Find its curved surface area.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 60π cm² (b) 55π cm² (c) 65π cm² (d) 70π cm²

Q84 A spherical iron ball of radius 9 cm is melted and recast into a cone of base radius 6 cm. What is the height of the cone?

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 78 cm (b) 81 cm (c) 86 cm (d) 92 cm

Q85 The cost of whitewashing a sphere is Rs. 1232 at a rate of Rs. 2 per cm². What is the volume of the sphere?

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) $\frac{1342}{3}$ cm³ (b) $\frac{2342}{3}$ cm³ (c) $\frac{3412}{3}$ cm³ (d) $\frac{4312}{3}$ cm³

Q86 A solid metallic sphere is converted into a wire of radius 0.2 cm and length 240 m. What was the radius of the sphere?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 8.94 cm (b) 2.54 cm (c) 6.28 cm (d) 5.45 cm

Q87 The ratio of the volumes of two cones is 2:3, and the ratio of the radii of their bases is 4:5. What is the ratio of their heights?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 25 : 24 (b) 19 : 16 (c) 16 : 25 (d) 17 : 18

Q88 If the radius of a cone is reduced by 20% while the height remains the same, by what percentage does its volume decrease?

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 20% (b) 36% (c) 40% (d) 48%

Q89 The volume of a cube is increased to 172.8%. By what percentage is the side of the cube increased?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 14.5% (b) 17% (c) 11.5% (d) 20%

Q90 A right prism has a regular hexagonal base. The capacity of the prism is $405\sqrt{3}$ cm³ and its height is 15 cm. What is the total lateral surface area of this hexagonal prism (in cm²)?

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $270\sqrt{2}$ cm² (b) $190\sqrt{2}$ cm² (c) $310\sqrt{3}$ cm² (d) $210\sqrt{3}$

Q91 Two right circular cylinders have equal volumes. If the ratio of their radii is 3: 5, find the ratio of their heights.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 9:25 (b) 25:9 (c) 9:20 (d) 20:9

Q92 A cube with a surface area of 216 cm² is melted and recast into smaller cubes, each with a surface area of 24 cm². Find the number of smaller cubes.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 15 (b) 24 (c) 27 (d) 18

Q93 The base of a right prism is a right-angled triangle with legs 6 cm and 8 cm. If the height of the prism is 10 cm, find the lateral surface area.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 240 cm² (b) 260 cm² (c) 280 cm² (d) 300 cm²

Q94 Two right circular cylinders have equal volumes, and the ratio of their heights is 16: 25. What is the ratio of their radii?

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 1:2 (b) 5:4 (c) 2:1 (d) 4:5

Q95 If a cube has a diagonal of $18\sqrt{3}$ cm and is melted to form a cuboid, its length is equal to the side of the cube, and its breadth is 9 cm. Find the height of the cuboid.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 44 cm (b) 27 cm (c) 36 cm (d) 49 cm

Q96 The total surface area of a cone is 616 cm², and its radius is 7 cm. Find the height of the cone.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 15 cm (b) 19.8 cm (c) 20.50 cm (d) 24.6 cm

Q97 A hemisphere is carved out of a wooden block of side 14 cm. What is the maximum possible surface area of the resulting solid?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 1176 cm² (b) 1330 cm² (c) 1078 cm² (d) 1232 cm²

Q98 In a right square pyramid, the length of a lateral edge is 20 cm. The height of the pyramid is 16 cm. Find the ratio of the slant height to the base side of the pyramid.

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) $\sqrt{40} : 16$ (b) $\sqrt{41} : 46$ (c) $\sqrt{41} : 6$ (d) $\sqrt{41} : 26$

Q99 A right prism with a pentagonal base has lateral surface area 900 cm². If the height is 15 cm, find the perimeter of the base.

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 55 cm (b) 60 cm (c) 57 cm (d) 69 cm

Q100 A square pyramid has a base edge of 5 cm and a height of 8 cm.

What is its volume in cubic cm?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 62.67 (b) 64.67 (c) 68 (d) 66.67

ANSWER KEY · Mock Set 04

76 (d)	77 (d)	78 (d)	79 (c)	80 (c)
81 (c)	82 (b)	83 (a)	84 (b)	85 (d)
86 (a)	87 (a)	88 (b)	89 (d)	90 (a)
91 (b)	92 (c)	93 (a)	94 (b)	95 (c)
96 (b)	97 (b)	98 (c)	99 (b)	100 (d)

Mock Set 04 · Solutions

Answer · Explanation · Key facts

Q76 Ans (d)

Increases by 8.9%

$1.1^2 \times 0.9 = 1.089 \Rightarrow$ **8.9%** वृद्धि।

Q77 Ans (d)

81:49

r^2h बराबर $\Rightarrow h \propto 1/r^2 \Rightarrow h_1 : h_2 = 9^2 : 7^2 =$ **81 : 49**।

Q78 Ans (d)

8

भुजाएँ 4 और 2 $\Rightarrow (4/2)^3 =$ **8**।

Q79 Ans (c)

1.5 cm

आधार: 10, 10, 12 $\Rightarrow$ ऊँचाई 8, क्षेत्रफल 48, परिमाप 32।

$(2 \times 48 + 32h)/(48h) = 2 \Rightarrow 96 + 32h = 96h \Rightarrow$ **h = 1.5 cm**।

Q80 Ans (c)

4:3

$r^2 \propto 1/h \Rightarrow r_1 : r_2 = \sqrt{16} : \sqrt{9} =$ **4 : 3**।

Q81 Ans (c)

90 cm²

18 × 5 = **90 cm²**।

Q82 Ans (b)

528 cm²

TSA = $2\pi r(r + h) = 2 \times 22/7 \times 7 \times 12 =$ **528 cm²**।

Q83 Ans (a)

60π cm²

$(1/3)\pi r^2 \times 8 = 96\pi \Rightarrow r = 6 \Rightarrow l = 10 \Rightarrow$ CSA = **60π cm²**।

Q84 Ans (b)

81 cm

$(4/3)\pi \times 729 = (1/3)\pi \times 36 \times h \Rightarrow h = 2916/36 =$ **81 cm**।

Q85 Ans (d)

$\frac{4312}{3}$ **cm³**

पृष्ठ = $1232/2 = 616 = 4\pi r^2 \Rightarrow r = 7 \Rightarrow V = (4/3)(22/7)(343) =$ **4312/3 cm³**।

Q86 Ans (a)

8.94 cm

तार = $\pi \times 0.04 \times 24000 = 960\pi = (4/3)\pi r^3 \Rightarrow r^3 = 720 \Rightarrow r \approx$ **8.94 cm**।

Q87 Ans (a)

25 : 24

$h \propto V/r^2 \Rightarrow (2/3)/(16/25) = 50/48 =$ **25 : 24**।

Q88 Ans (b)

36%

$0.8^2 = 0.64 \Rightarrow$ **36%** कमी।

Q89 Ans (d)

20%

$\sqrt[3]{1.728} = 1.2 \Rightarrow$ भुजा **20%** बढ़ी।

Q90 Ans (a)

$270\sqrt{2}$ **cm²**

आधार = $405\sqrt{3}/15 = 27\sqrt{3} = (3\sqrt{3}/2)a^2 \Rightarrow a^2 = 18 \Rightarrow a = 3\sqrt{2}$।

Lateral = $6 \times 3\sqrt{2} \times 15 =$ **270√2 cm²**।

Q91 Ans (b)

25:9

$h \propto 1/r^2 \Rightarrow$ **25 : 9**।

Q92 **Ans (c)**

27

भुजाएँ 6 और 2 ⇒ 3^3 = **27**।

Q93 **Ans (a)**

240 cm²

परिमाप = 6 + 8 + 10 = 24 ⇒ 24 × 10 = **240 cm²**।

Q94 **Ans (b)**

5:4

$r \propto 1/\sqrt{h}$ ⇒ $\sqrt{25} : \sqrt{16}$ = **5 : 4**।

Q95 **Ans (c)**

36 cm

भुजा = 18 ⇒ 18 × 9 × h = 18^3 ⇒ **h = 36 cm**।

Q96 **Ans (b)**

19.8 cm

$\pi r(r + l) = 616$ ⇒ $22(7 + l) = 616$ ⇒ l = 21 ⇒ $h = \sqrt{(441 - 49)} \approx$ **19.8 cm**।

Q97 **Ans (b)**

1330 cm²

Cube = 6 × 196 = 1176; अर्धगोला (r = 7) निकालने पर πr^2 घटता, $2\pi r^2$ जुड़ता ⇒ +154 ⇒ **1330 cm²**।

Q98 **Ans (c)**

$\sqrt{41} : 6$

आधा विकर्ण = $\sqrt{(400 - 256)} = 12$ ⇒ भुजा = $12\sqrt{2}$, आधी भुजा $6\sqrt{2}$।

Slant = $\sqrt{(256 + 72)} = 2\sqrt{82}$ ⇒ $2\sqrt{82} : 12\sqrt{2}$ = **$\sqrt{41}$: 6**।

Q99 **Ans (b)**

60 cm

900/15 = **60 cm**।

Q100 **Ans (d)**

66.67

(1/3) × 25 × 8 ≈ **66.67 cm³**।

Mock Set 05 Q101–Q125 · 16 Oct → 27 Oct

TOPIC · Mensuration (3D) (5/6)

Q101 The radius of a cylinder is 10 cm and the height is 14 cm. Find the curved surface area in square centimetres. (Use π = 22/7)

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 880 (b) 940 (c) 900 (d) 720

Q102 A regular right pyramid has an equilateral triangular base with side length 8 cm and height 10 cm. Find the volume of the pyramid.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 56.37 cm³ (b) 82.56 cm³ (c) 92.37 cm³ (d) 72.56 cm³

Q103 A cubical block with side length 6 cm has a hemispherical cavity of diameter 2 cm removed from each of its faces. Calculate the approximate surface area of the resulting solid. (Use π = 22/7)

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 357.12 cm² (b) 378.18 cm² (c) 256.95 cm² (d) 234.86 cm²

Q104 A cube with diagonal $30\sqrt{3}$ cm is melted to make a cuboid. The length of the cuboid is equal to the side of the cube and the breadth is 15 cm. Find the height.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 38 cm (b) 60 cm (c) 45 cm (d) 52 cm

Q105 A right square pyramid of volume 500 cm³ is scaled up by 20% in all dimensions. What is its new volume?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 720 cm³ (b) 915 cm³ (c) 864 cm³ (d) 908 cm³

Q106 A hemispherical dome is to be covered with gold leaf at the rate of Rs5 per 100 cm². The circumference of the base is 44 m. Find the cost of gilding. (Use π = $\frac{22}{7}$)

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) Rs1,76,100 (b) Rs1,54,000 (c) Rs1,64,250 (d) Rs1,47,100

Q107 If the height of a regular right square pyramid is increased by 25% and the base side length is increased by 10%, by what percentage does the volume increase?

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 51.25% (b) 46.28% (c) 22.54% (d) 55.84%

Q108 A tent, 17 m high, is shaped as a frustum of a cone topped with a hemisphere. The diameters of the top and bottom circular ends of the frustum are 16 m and 40 m, respectively. Calculate the surface area of the cloth required to make the tent, ignoring any wastage. (Use π = 22/7)

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 1810.34 m² (b) 1936.12 m² (c) 1722.29 m² (d) 1614.46 m²

Q109 If the base edge of a regular square pyramid is 8 cm and its height is 3 cm, what is the slant height?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 5 cm (b) √73 cm (c) √41 cm (d) √7 cm

Q110 A regular right pyramid has an equilateral triangle with 12 cm sides as its base. If each lateral edge is 13 cm long, what's the pyramid's volume?

A cmB cmC cmD cm

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) $132\sqrt{3}$ ^{3} (b) 132 ^{3} (c) $102\sqrt{13}$ ^{3} (d) $15\sqrt{3}$ ^{3}

Q111 Calculate the curved surface area (in square centimetres) of a cylinder with radius 3.5 cm and height 12 cm. (Use π = 22/7)

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 270 (b) 268 (c) 264 (d) 277

Q112 The lateral surface area of a right prism is 180 cm². If the perimeter of the base is 30 cm, find its height.

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 5cm (b) 6cm (c) 7cm (d) 8cm

Q113 A pyramid has height 9 cm and base area 120 cm². If lateral surface area = 180 cm², what is total surface area?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 180 cm³ (b) 280 cm³ (c) 240 cm³ (d) 300 cm³

Q114 A hollow spherical metallic ball has an external diameter of 14 cm. If the thickness of the shell is 1 cm and the density of the metal is 8 g/cm³, find the total weight of the ball in kg. (Use π = 22/7)

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 7.04 kg (b) 6.42 kg (c) 5.84 kg (d) 4.26 kg

Q115 A hollow metallic sphere has an outer radius of 4 cm and a thickness of 3 cm. Calculate the total volume of metal used to make the sphere.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 254 cm³ (b) 354 cm³ (c) 264 cm³ (d) 246 cm³

Q116 If l = 9 cm, b = 4 cm, and h = 2 cm, the volume is:

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 72 cm³ (b) 80 cm³ (c) 68 cm³ (d) 90 cm³

Q117 A conical vessel has a height of 3.5 cm and can hold 3.3 litres of milk. What is the radius of its base?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) 36 cm (b) 45 cm (c) 30 cm (d) 35 cm

Q118 The hemispherical dome of a building is to be painted. If the circumference of its base is 44 m, determine the cost of painting the dome at a rate of Rs25 per square meter. (Use π = 22/7)

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) Rs7700 (b) Rs6500 (c) Rs8800 (d) Rs6870

Q119 If the volume of a cube is reduced to 21.6%, find the percentage decrease in the side.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 25% (b) 40% (c) 32% (d) 51%

Q120 A right prism stands on a square base of side a. If the height of the prism is doubled and the side of the square base is halved, what is the ratio of the new volume to the original volume?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 1:2 (b) 1:3 (c) 1:4 (d) 1:1

Q121 A right circular cylinder has a height of 8 m. If four times the combined area of its two circular bases is equal to three times its curved surface area, find the radius of the base (in m).

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 5 m (b) 6 m (c) 7 m (d) 8 m

Q122 The curved surface area of a hemisphere is 2772 cm². Find its volume.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 19404 cm³ (b) 29404 cm³ (c) 20404 cm³ (d) 12304 cm³

Q123 The space diagonal of a cube of side 3 cm is:

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 5.19 cm (b) 4.32 cm (c) 3.46 cm (d) 6.90 cm

Q124 Calculate the volume of a cylinder whose base area is 1386 cm² and height is 50 cm.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) 56800 cm³ (b) 56589 cm³ (c) 35648 cm³ (d) 69300 cm³

Q125 A hemispherical bowl of internal radius r is filled with water. A solid sphere of radius r/2 is gently placed into the bowl. If the water overflows, what fraction of the bowl's total volume overflows?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) $\frac{1}{4}$ (b) $\frac{1}{8}$ (c) $\frac{1}{6}$ (d) $\frac{1}{2}$

ANSWER KEY · Mock Set 05

101 (a)	102 (c)	103 (d)	104 (b)	105 (c)
106 (b)	107 (a)	108 (c)	109 (a)	110 (a)
111 (c)	112 (b)	113 (d)	114 (d)	115 (c)
116 (a)	117 (c)	118 (a)	119 (b)	120 (a)
121 (b)	122 (a)	123 (a)	124 (d)	125 (a)

Mock Set 05 · Solutions

Answer · Explanation · Key facts

Q101 Ans (a)

880

2 × 22/7 × 10 × 14 = **880 cm²**।

Q102 Ans (c)

92.37 cm³

आधार = (√3/4) × 64 = 16√3 ≈ 27.71 ⇒ V = (1/3) × 27.71 × 10 ≈ **92.37 cm³**।

Q103 Ans (d)

234.86 cm²

Cube = 216। हर फलक पर πr² हटता, 2πr² जुड़ता ⇒ +π प्रति फलक ⇒ 216 + 6 × 22/7 ≈ **234.86 cm²**।

Q104 Ans (b)

60 cm

भुजा 30 ⇒ 30 × 15 × h = 27000 ⇒ **h = 60 cm**।

Q105 Ans (c)

864 cm³

500 × 1.2³ = 500 × 1.728 = **864 cm³**।

Q106 Ans (b)

Rs1,54,000

2πr = 44 ⇒ r = 7 m ⇒ CSA = 2πr² = 308 m² = 30,80,000 cm²।

लागत = 30,80,000 × 5/100 = **Rs 1,54,000**।

Q107 Ans (a)

51.25%

1.1² × 1.25 = 1.5125 ⇒ **51.25%** वृद्धि।

Q108 Ans (c)

1722.29 m²

Frustum की त्रिज्याएँ 8 और 20, अर्धगोला r = 8 ⇒ frustum की ऊँचाई = 17 - 8 = 9 ⇒ slant = √(81 + 144) = 15।

कपड़ा = π(8 + 20) × 15 + 2π × 64 = 548π ≈ **1722.29 m²**।

Q109 Ans (a)

5 cm

√(3² + 4²) = **5 cm**।

Q110 Ans (a)

$132\sqrt{3}$ ³

आधार की circumradius = 12/√3 = 4√3 ⇒ h = √(169 - 48) = 11।

V = (1/3) × 36√3 × 11 = **132√3 cm³**।

Q111 Ans (c)

264

2 × 22/7 × 3.5 × 12 = **264 cm²**।

Q112 Ans (b)

6cm

180/30 = **6 cm**।

Q113 Ans (d)

300 cm³

TSA = 180 + 120 = **300 cm²**।

Q114 Ans (d)

4.26 kg

R = 7, r = 6 ⇒ V = (4/3)(22/7)(343 - 216) ≈ 532.2 cm³ ⇒ भार = 532.2 × 8 ≈ 4258 g ≈ **4.26 kg**।

Q115 **Ans (c)**

264 cm³

भीतरी त्रिज्या 1 ⇒ (4/3)π(64 - 1) = 84π ≈ **264 cm³**।

Q116 **Ans (a)**

72 cm³

9 × 4 × 2 = **72 cm³**।

Q117 **Ans (c)**

30 cm

3300 = (1/3)(22/7) r² × 3.5 ⇒ r² = 900 ⇒ **r = 30 cm**।

Q118 **Ans (a)**

Rs7700

r = 7 ⇒ CSA = 2πr² = 308 m² ⇒ लागत = 308 × 25 = **Rs 7700**।

Q119 **Ans (b)**

40%

$\sqrt[3]{0.216}$ = 0.6 ⇒ भुजा **40%** घटी।

Q120 **Ans (a)**

1:2

(1/2)² × 2 = 1/2 ⇒ **1 : 2**।

Q121 **Ans (b)**

6 m

4 × 2πr² = 3 × 2πr × 8 ⇒ 4r = 24 ⇒ **r = 6 m**।

Q122 **Ans (a)**

19404 cm³

2πr² = 2772 ⇒ r = 21 ⇒ V = (2/3)(22/7)(9261) = **19404 cm³**।

Q123 **Ans (a)**

5.19 cm

3√3 ≈ **5.19 cm**।

Q124 **Ans (d)**

69300 cm³

1386 × 50 = **69300 cm³**।

Q125 **Ans (a)**

$\frac{1}{4}$

गोला (r/2) = (4/3)π(r³/8) = πr³/6; कटोरा = (2/3)πr³ ⇒ भाग = **1/4**।

Mock Set 06 Q126–Q137 · 27 Oct → 28 Oct

TOPIC · Mensuration (3D) (6/6)

Q126 A cube with a diagonal of 20√3 cm is melted into a cuboid. If the length of the cuboid is equal to the side of the cube and the breadth is 10 cm, find its height.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 20 cm (b) 16 cm (c) 28 cm (d) 40 cm

Q127 For a cylinder with a radius to height ratio of 5:6, if its curved surface area is 660π, find the radius.

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) $5\sqrt{10}$ cm (b) $5\sqrt{11}$ cm (c) $6\sqrt{11}$ cm (d) $6\sqrt{10}$ cm

Q128 The base of a right prism is a trapezoid with parallel sides 12 cm, 20 cm and height 9 cm. If the volume is 3888 cm³, what is the prism's height?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 29 cm (b) 35 cm (c) 25 cm (d) 27 cm

Q129 The height of a square pyramid is 24 cm and slant height is 25 cm. Find the lateral surface area if base side is unknown.

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 700 cm² (b) 500 cm² (c) 520 cm² (d) 540 cm²

Q130 A hollow cuboid has a length of 25 cm, a breadth of 20 cm, and a height of 15 cm, with a wall thickness of 2 cm. Find the volume of the solid material.

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 4312 cm³ (b) 3170 cm³ (c) 3804 cm³ (d) 4978 cm³

Q131 What will be the total surface area of a hemispherical bowl of radius 14 cm?

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 3488 cm² (b) 1788 cm² (c) 1848 cm² (d) 2848 cm²

Q132 The number of vertices in a rectangular parallelepiped is:

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 6 (b) 8 (c) 12 (d) 10

Q133 The height of a right circular cone is 8 cm and its slant height is 10 cm. Find its curved surface area.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 75π cm² (b) 70π cm² (c) 60π cm² (d) 65π cm²

Q134 A solid metallic hemisphere has a total surface area of 166.32 cm². If it is melted and recast into a solid sphere, what will be the approximate radius of the resulting sphere? (Use π = 22/7)

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 2.1 cm (b) 4.2 cm (c) 3.3 cm (d) 5.6 cm

Q135 The dimensions of a cuboidal vessel are in the ratio 1:3:4. If the total capacity of the vessel is 96 liters, what is the length (in cm) of the shortest side?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 15 cm (b) 18 cm (c) 20 cm (d) 23 cm

Q136 The height of a right triangular prism is 18 cm and the ratio of the sides of its base is 3 : 4 : 5. If the total area of the three lateral surfaces is 432 cm², then what is the volume of the prism in cubic centimeters?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 512 cm³ (b) 432 cm³ (c) 384 cm³ (d) 468 cm³

Q137 A cylindrical tank is 18 m high. If four times the area of its two circular ends equals six times its curved surface area, find the radius of the tank (in m).

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 18 m (b) 21 m (c) 24 m (d) 27 m

ANSWER KEY · Mock Set 06

126 (d)	127 (b)	128 (d)	129 (a)	130 (c)
131 (c)	132 (b)	133 (c)	134 (c)	135 (c)
136 (b)	137 (d)			

Mock Set 06 · Solutions

Answer · Explanation · Key facts

Q126 Ans (d)

40 cm

भुजा 20 ⇒ 20 × 10 × h = 8000 ⇒ **h = 40 cm**।

Q127 Ans (b)

$5\sqrt{11}$ cm

r = 5k, h = 6k ⇒ 2π × 30k² = 660π ⇒ k² = 11 ⇒ **r = 5√11 cm**।

Q128 Ans (d)

27 cm

आधार = ½(12 + 20) × 9 = 144 ⇒ h = 3888/144 = **27 cm**।

Q129 Ans (a)

700 cm²

आधी भुजा = √(625 − 576) = 7 ⇒ भुजा 14 ⇒ LSA = 4 × ½ × 14 × 25 = **700 cm²**।

Q130 Ans (c)

3804 cm³

बाहरी = 25 × 20 × 15 = 7500; भीतरी = 21 × 16 × 11 = 3696 ⇒ पदार्थ = **3804 cm³**।

Q131 Ans (c)

1848 cm²

TSA = 3πr² = 3 × 22/7 × 196 = **1848 cm²**।

Q132 Ans (b)

8

घनाभ के **8** शीर्ष।

Q133 Ans (c)

60π cm²

r = 6 ⇒ CSA = π × 6 × 10 = **60π cm²**।

Q134 Ans (c)

3.3 cm

3πr² = 166.32 ⇒ r = 4.2। (2/3)πr³ = (4/3)πR³ ⇒ R³ = r³/2 ⇒ R ≈ 4.2/1.26 ≈ **3.3 cm**।

Q135 Ans (c)

20 cm

12x³ = 96,000 cm³ ⇒ x³ = 8000 ⇒ **x = 20 cm**।

Q136 Ans (b)

432 cm³

परिमाप 12k × 18 = 432 ⇒ k = 2 ⇒ भुजाएँ 6, 8, 10 ⇒ आधार 24 ⇒ V = 24 × 18 = **432 cm³**।

Q137 **Ans (d)**

27 m

$4 \times 2\pi r^2 = 6 \times 2\pi r \times 18 \Rightarrow 4r = 108 \Rightarrow$ **r = 27 m**।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 19

Coordinate Geometry

Distance · Section Formula · Lines · Area

28	1	1	3
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Coordinate Geometry

01 Slope
ax + by + c = 0 का slope = -a/b; समानांतर: m बराबर, लंब: $m_1m_2 = -1$।

02 Centroid
$((x_1 + x_2 + x_3)/3, (y_1 + y_2 + y_3)/3)$।

03 Intercept form
x/a + y/b = 1; midpoint (h, k) ⇒ intercepts 2h और 2k।

Mock Set 01 Q1–Q28 · 30 Sep → 28 Oct

TOPIC · Coordinate Geometry

Q1 What is the distance between points A(2, 3) and B(5, 7)?

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 4 units (b) 6 units (c) 7 units (d) 5 units

Q2 Which type of line has a slope equal to zero?

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) Vertical line (b) Line making 45° with x-axis
(c) Horizontal line (d) Oblique line

Q3 For the equation 5x - 2y = 10, what is the slope of the line?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 5/3 (b) 5/2 (c) 3/2 (d) 1/2

Q4 The graph of the equation 2x + 0y = 10 represents a:

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) Horizontal line at y = 5
(b) Vertical line at x = 5
(c) Line passing through the origin
(d) Oblique line

Q5 If two lines are perpendicular and one has a slope of a/b, what is the slope of the other?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) -b/a (b) -a/b (c) 0 (d) 1

Q6 The equation y = 2x + 3 represents a line. What is the y-intercept?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 2 (b) 5 (c) 3 (d) 6

Q7 If the coordinates of the triangle vertices are A(2,3), B(8,3), and C(5,7), what are the coordinates of the centroid?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) (5,4) (b) (5,13/3) (c) (4,5) (d) (5,5/3)

Q8 If the graph of y = mx + c is parallel to the line passing through (2, 5) and (4, 1), and it passes through the point (1, 1), what is the value of c?

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 3 (b) -1 (c) 2 (d) -4

Q9 Consider the circles represented by the equations $x^2 + y^2 = a^2$ and $x^2 + y^2 - 2ax = 0$. What is the relative position of these two circles?

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) They touch each other externally.
(b) They touch each other internally.
(c) They intersect at two distinct points.
(d) They remain separate without touching.

Q10 The graph of $y = -3x + 4$ is parallel to which of the following?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) $y = 3x + 4$ (b) $y = -3x - 7$ (c) $3y = x + 2$ (d) $y = 3x$

Q11 Find the area of the rectangle formed by the graphs of x = 0, x = 4, y = 0, and y = 3.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 7 square units
(b) 12 square units
(c) 14 square units
(d) 10 square units

Q12 The lines x - y = 0, x + y = 0, and y = k form a triangle. If the area of this triangle is 25 sq. units, what is the value of k?

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) k = 5 or -5
(b) k = -10 or 10
(c) k = 25 or -25
(d) k = -20 or 20

Q13 The line described by the equation y=mx+c passes through the points (1,4) and (−2, −5). Determine the values of m and c.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) m=3, c=1 (b) m=1, c=3 (c) m=3, c=-1 (d) m=-3, c=7

Q14 Find the area of the region bounded by the graphs y = 2x + 4, y = -x + 7, and the y-axis.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 1.5 sq. units
(b) 2.5 sq. units
(c) 3.5 sq. units
(d) 4.5 sq. units

Q15 Find the equation of the line parallel to 3x - 4y + 8 = 0 passing through the point (4, 1).

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 3x - 4y - 8 = 0
(b) 3x - 4y + 12 = 0
(c) 4x + 3y - 19 = 0
(d) 3x - 4y + 4 = 0

Q16 Determine the area of the region formed by the graph of the equation y=|x-1| and the line y=3.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 6 sq. units
(b) 12 sq. units
(c) 9 sq. units
(d) 18 sq. units

Q17 Find the x-intercept of the line 5x-2y=10:

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 2 (b) 3 (c) -2 (d) 1

Q18 A line L has a slope of -1 and passes through the point (4, 4). What is the area of the triangle formed by this line and the coordinate axes?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 24 square units
(b) 32 square units
(c) 16 square units
(d) 64 square units

Q19 A triangle ABC has its vertices at A(1, 1), B(5, 1), and C(3, 1+2√3). If a point P within the triangle is such that its perpendicular distance to AB, BC, and CA are all equal, which of the following is true about point P?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) P is the centroid of triangle ABC.
(b) P is the orthocenter of triangle ABC, and it lies on the line x=3.
(c) P is the circumcenter of triangle ABC, and it is located outside the triangle.
(d) P is the incentre of triangle ABC, and triangle ABC is equilateral.

Q20 The lines: L1 = 2x + 1 and L2 = 2x - 3 are:

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) Parallel
(b) Perpendicular
(c) Coincident
(d) Intersecting at one point

Q21 If the graph of the line y = mx + 4 passes through the point (2, 10), what is the value of m?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 4 (b) 7 (c) 3 (d) 2

Q22 If the lines ax + 2y = 10 and 3x + ay = 15 are parallel but not coincident, what is the value of a?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $a = \sqrt{6}, a = -\sqrt{6}$
(b) $a = \sqrt{3}, a = -\sqrt{3}$
(c) $a = \sqrt{2}, a = -\sqrt{2}$
(d) $a = \sqrt{5}, a = -\sqrt{5}$

Q23 A line cuts the x-axis at A and the y-axis at B. If the midpoint of AB is (3, -2), what is the equation of the line?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 2x - 3y = 12 (b) 3x - 2y = 6
(c) 2x + 3y = 12 (d) 3x + 2y = 6

Q24 Consider a triangle ABC with vertices A(0, 0), B(8, 0) and C(4, 6).

Which of the following statements about its centers is false?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) The centroid is located at (4, 2).
(b) The orthocenter lies inside the triangle.
(c) The circumcenter is equidistant from A, B, and C.
(d) The incenter is equidistant from the midpoints of the sides AB, BC, CA.

Q25 The graph of which equation passes through the origin?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) x + y = 1 (b) x - y = 0 (c) 2x + 3 = 0 (d) x = 5

Q26 If the lines represented by x + y = 1, x - y = 5, and 3x + 4y = k are concurrent (passing through the same point), find the value of (k + 5).

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 6 (b) 1 (c) 0 (d) 7

Q27 What is the equation of the line passing through the origin and the point of intersection of $x + 2y = 7$ and $2x - y = 4$?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) y = x (b) 2x = 3y (c) 3x = 2y (d) y = 2x

Q28 The graphs of the equations $3x - 2y = 8$ and $4x + 3y = 5$ intersect at the point P(a, b). What is the value of (2a - b)?

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 3 (b) 5 (c) 4 (d) 6

ANSWER KEY · Mock Set 01

1 (d)	2 (c)	3 (b)	4 (b)	5 (a)
6 (c)	7 (b)	8 (a)	9 (c)	10 (b)
11 (b)	12 (a)	13 (a)	14 (a)	15 (a)
16 (c)	17 (a)	18 (b)	19 (d)	20 (a)
21 (c)	22 (a)	23 (a)	24 (d)	25 (b)
26 (a)	27 (b)	28 (b)		

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (d)

5 units

AB = √[(5 - 2)² + (7 - 3)²] = √(9 + 16) = **5 units**।

Q2 Ans (c)

Horizontal line

Slope 0 ⇒ रेखा x-अक्ष के समानांतर ⇒ **Horizontal line**।

Q3 Ans (b)

5/2

2y = 5x - 10 ⇒ y = (5/2)x - 5 ⇒ slope = **5/2**।

Q4 Ans (b)

Vertical line at x = 5

2x = 10 ⇒ x = 5 ⇒ **x = 5 पर vertical line**।

Q5 Ans (a)

-b/a

लंब रेखाओं के लिए $m_1m_2 = -1$ ⇒ दूसरी slope = **-b/a**।

Q6 Ans (c)

3

y = mx + c में c = y-intercept = **3**।

Q7 Ans (b)

(5,13/3)

Centroid = ((2 + 8 + 5)/3, (3 + 3 + 7)/3) = **(5, 13/3)**।

Q8 Ans (a)

3

Slope = (1 - 5)/(4 - 2) = -2। (1, 1) से: 1 = -2 + c ⇒ **c = 3**।

Q9 **Ans (c)**

They intersect at two distinct points.

पहला वृत्त: केंद्र (0, 0), r = a; दूसरा: केंद्र (a, 0), r = a।
केंद्रों की दूरी a, और 0 < a < 2a ⇒ **दो बिंदुओं पर काटते हैं**।

Q10 **Ans (b)**

$y = -3x - 7$

समानांतर रेखाओं की slope बराबर (-3) ⇒ **y = -3x - 7**।

Q11 **Ans (b)**

12 square units

Rectangle 4 × 3 = **12 square units**।

Q12 **Ans (a)**

k = 5 or -5

शीर्ष (0, 0), (k, k), (-k, k) ⇒ क्षेत्रफल = ½ × 2|k| × |k| = k² = 25 ⇒ **k = ±5**।

Q13 **Ans (a)**

m=3, c=1

m = (4 + 5)/(1 + 2) = 3; 4 = 3 + c ⇒ c = 1 ⇒ **m = 3, c = 1**।

Q14 **Ans (a)**

1.5 sq. units

y-अक्ष पर बिंदु (0, 4) और (0, 7); दोनों रेखाएँ x = 1 पर मिलती हैं।
क्षेत्रफल = ½ × 3 × 1 = **1.5 sq. units**।

Q15 **Ans (a)**

3x - 4y - 8 = 0

समानांतर रेखा 3x - 4y + c = 0; (4, 1) से 12 - 4 + c = 0 ⇒ c = -8 ⇒ **3x - 4y - 8 = 0**।

Q16 **Ans (c)**

9 sq. units

शीर्ष (1, 0), (-2, 3), (4, 3) ⇒ आधार 6, ऊँचाई 3 ⇒ क्षेत्रफल = **9 sq. units**।

Q17 **Ans (a)**

2

y = 0 रखें ⇒ 5x = 10 ⇒ **x = 2**।

Q18 **Ans (b)**

32 square units

y - 4 = -(x - 4) ⇒ x + y = 8 ⇒ intercepts 8, 8 ⇒ क्षेत्रफल = ½ × 8 × 8 = **32 square units**।

Q19 **Ans (d)**

P is the incentre of triangle ABC, and triangle ABC is equilateral.

AB = 4, AC = √(4 + 12) = 4, BC = 4 ⇒ त्रिभुज समबाहु। तीनों भुजाओं से समान दूरी वाला बिंदु incentre होता है।
⇒ **P incentre है और त्रिभुज समबाहु है**।

Q20 **Ans (a)**

Parallel

दोनों की slope 2, intercept अलग ⇒ **Parallel**।

Q21 **Ans (c)**

3

10 = 2m + 4 ⇒ **m = 3**।

Q22 **Ans (a)**

$a = \sqrt{6}, a = -\sqrt{6}$

समानांतर: a/3 = 2/a ⇒ a² = 6 ⇒ **a = ±√6** (10/15 ≠ 2/a, इसलिए coincident नहीं)।

Q23 **Ans (a)**

2x - 3y = 12

A(6, 0), B(0, -4) ⇒ x/6 + y/(-4) = 1 ⇒ **2x - 3y = 12**।

Q24 **Ans (d)**

The incenter is equidistant from the midpoints of the sides AB, BC, CA.

Incentre भुजाओं से समान दूरी पर होता है, भुजाओं के मध्य बिंदुओं से नहीं ⇒ कथन **(d) ग़लत** है।

Q25 **Ans (b)**

x - y = 0

(0, 0) रखने पर x - y = 0 संतुष्ट ⇒ **x - y = 0**।

Q26 **Ans (a)**

6

x + y = 1, x - y = 5 ⇒ (3, -2)। 3(3) + 4(-2) = k ⇒ k = 1 ⇒ k + 5 = **6**।

Q27 **Ans (b)**

2x = 3y

प्रतिच्छेद बिंदु (3, 2) ⇒ मूल बिंदु से रेखा y = 2x/3 ⇒ **2x = 3y**।

Q28 **Ans (b)**

आकृति 5

3x - 2y = 8, 4x + 3y = 5 ⇒ x = 2, y = -1 ⇒ 2a - b = 4 + 1 = **5**।

CHAPTER 20

Trigonometry

Identities · Values · Max/Min · Complementary Angles

141	1	6	5
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Trigonometry

01 sin A + cos A = k
sin A cos A = (k² - 1)/2 ⇒ tan A + cot A = 1/(sin A cos A)।

02 sec + tan = p
sec - tan = 1/p; cosec - cot = (1 - cos)/sin।

03 Complementary
sin θ = cos(90 - θ): दोनों कोणों का योग 90 रखें।

04 a sin θ + b cos θ = √(a² + b²)
तब sin θ = a/√(a² + b²), cos θ = b/√(a² + b²)।

05 Radian
π = 180°; घड़ी: hour hand 30°/घंटा, minute hand 6°/मिनट; कोण = |30H - 5.5M|।

Mock Set 01 Q1–Q25 · 30 Sep → 7 Oct

TOPIC · Trigonometry (1/6)

Q1 If tan A + cot A = 2 and A is an acute angle, find the value of $\tan^4 A + \cot^4 A$.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) 2 (b) 20 (c) 22 (d) 24

Q2 If $\sin A + \cos A = \frac{5}{4}$, then find the value of $\tan A + \cot A$.

SSC CGL 2026 · 30 Sep 2026 · Shift-2

(a) $\frac{32}{9}$ (b) $\frac{25}{16}$ (c) $\frac{9}{32}$ (d) $\frac{16}{25}$

Q3 Evaluate the following expression:
$\left(\frac{\sin\theta}{1+\cos\theta} + \frac{1+\cos\theta}{\sin\theta}\right)\left(\frac{1}{\tan\theta+\cot\theta}\right)$

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 2 sin θ (b) 2 tan θ (c) tan θ (d) 2 cos θ

Q4 If $\tan\theta = \sqrt{3}$, find the value of $\frac{\text{cosec}^2\theta + \sec^2\theta}{\text{cosec}^2\theta - \sec^2\theta}$.

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) $-\frac{3}{2}$ (b) 2 (c) $\frac{3}{2}$ (d) -2

Q5 If $\sec\theta + \tan\theta = p$, then find the value of $\frac{p^2+1}{p^2-1}$.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) sin θ (b) cosec θ (c) tan θ (d) cot θ

Q6 Solve for acute θ: sin θ = cos(θ + 30°)

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 30° (b) 60° (c) 45° (d) 15°

Q7 If sin A = 3/5 and A is acute, find the value of (1 + tan²A) / sec²A.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 1 (b) 9/16 (c) 25/16 (d) 4/3

Q8 If tan x = cot(3x - 30°), and x is an acute angle, find the value of x

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 70° (b) 7° (c) 130° (d) 30°

Q9 If A + B = C, then find the value of tan A tan B tan C.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) tanC - tanA + tanB (b) tanC + tanA + tanB
(c) tanC + tanA - tanB (d) tanC - tanA - tanB

Q10 Simplify: $\tan(90° - 2\theta)\cdot\tan\theta\cdot\tan(90° - \theta)\cdot\tan 2\theta$, where 2θ is an acute angle.

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 2 (b) 0 (c) 1 (d) cot θ

Q11 Simplify: $(1 - \cos^2\theta)(1 + \tan^2\theta)$

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) 1 (b) $\cot^2\theta$ (c) $\sin^2\theta\cdot\sec^2\theta$ (d) $\sec^2\theta$

Q12 If $\sin\theta + \cos\theta = \frac{3}{2}$, find the value of $\tan\theta + \cot\theta$.

SSC CGL 2026 · 5 Oct 2026 · Shift-2

(a) $\frac{5}{8}$ (b) $\frac{3}{4}$ (c) $\frac{4}{3}$ (d) $\frac{8}{5}$

Q13 If $\cos\theta = 0$, then $\sin^2\theta$ = ?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 0 (b) 1 (c) 2 (d) 3

Q14 A projectile launch angle satisfies sine twice the angle is 0.8 and cosine twice the angle is 0.6. Calculate sum of fourth powers of sine and cosine of the launch angle to predict range stability.

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 1 (b) 0.6 (c) 0.68 (d) 0.72

Q15 In an optical system, two light beams hit a lens at angles x and y. The system's calibration requires finding the product of the sums of sine and cosine of these angles to optimize the focus. The engineers know that the difference of squares of their sine values is 1/4, and the difference of their sine and cosine products is 0. Given: $\sin^2x - \sin^2y = 1/4$ sin x cos x - sin y cos y = 0 Find the value of (sin x + cos x) × (sin y + cos y).

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 1.5 (b) 1.775 (c) 1.968 (d) 2.25

Q16 If $\sin A - \cos A = \frac{\sqrt{2}}{2}$ and angle A lies in the first quadrant, find the value of sin A + cos A.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) $\frac{\sqrt{3}}{2}$ (b) $\frac{\sqrt{6}}{2}$ (c) 1 (d) $\frac{\sqrt{2}}{2}$

Q17 What is the value of $\frac{5\csc^2 30^\circ - 3\cot^2 30^\circ + 16\cos^4 45^\circ}{2\sqrt{3}\tan 60^\circ + 4\sin^2 60^\circ}$?

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 1 (b) $\frac{5}{3}$ (c) $\frac{1}{2}$ (d) 0

Q18 Evaluate: $\frac{\sin 35^\circ}{\cos 55^\circ}$

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 1 (b) 0 (c) -1 (d) 2

Q19 Find the value of θ (0° < θ < 90°) if $\frac{\cos\theta}{1-\sin\theta} + \frac{\cos\theta}{1+\sin\theta} = 4$.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) 30° (b) 45° (c) 60° (d) 75°

Q20 If tan θ = √5, find the value of $\frac{\csc^2\theta + \sec^2\theta}{\csc^2\theta - \sec^2\theta}$.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) $\frac{3}{2}$ (b) $-\frac{4}{5}$ (c) $-\frac{3}{2}$ (d) $\frac{4}{5}$

Q21 The hour hand of a clock moves from 3:00 to 7:00. What angle does it sweep in radians?

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) $\frac{2\pi}{3}$ radians (b) $\frac{\pi}{3}$ radians
(c) $\frac{2\pi}{7}$ radians (d) $\frac{\pi}{7}$ radians

Q22 In a triangle ABC, right-angled at B, if $\tan A = \frac{5}{2}$, find the value of $\frac{\sin A(\cos C + \cos A)}{\cos C(\sin C - \sin A)}$.

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) $\frac{7}{3}$ (b) $\frac{5}{2}$ (c) $-\frac{7}{3}$ (d) $-\frac{5}{2}$

Q23 If θ = 2π/3 radians, find the quadrant in which θ lies.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) I (b) II (c) III (d) IV

Q24 If 20 sin θ + 21 cos θ = 29, find the value of sin θ .

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\frac{21}{29}$ (b) $\frac{9}{29}$ (c) $\frac{20}{29}$ (d) $\frac{12}{29}$

Q25 If two angles of a triangle are $\frac{\pi}{3}$ radians and 45°, find the third angle in degrees.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) 55° (b) 65° (c) 75° (d) 85°

ANSWER KEY · Mock Set 01				
1 (a)	2 (a)	3 (d)	4 (d)	5 (b)
6 (a)	7 (a)	8 (d)	9 (d)	10 (c)
11 (c)	12 (d)	13 (b)	14 (c)	15 (c)
16 (b)	17 (b)	18 (a)	19 (c)	20 (c)
21 (a)	22 (c)	23 (b)	24 (c)	25 (c)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (a)**

आकृति 2

tan A + 1/tan A = 2 ⇒ tan A = 1 ⇒ $\tan^4 A + \cot^4 A = 1 + 1 = 2$।

Q2 **Ans (a)**

$\frac{32}{9}$

$(\sin A + \cos A)^2 = 25/16 \Rightarrow 2 \sin A \cos A = 9/16 \Rightarrow \sin A \cos A = 9/32$।

tan A + cot A = 1/(sin A cos A) = **32/9**।

Q3 **Ans (d)**

2 cos θ

पहला भाग: $[\sin^2\theta + (1 + \cos\theta)^2]/[\sin\theta(1 + \cos\theta)] = 2(1 + \cos\theta)/[\sin\theta(1 + \cos\theta)] = 2/\sin\theta$।

दूसरा भाग: 1/(tan θ + cot θ) = sin θ cos θ ⇒ गुणनफल = **2 cos θ**।

Q4 **Ans (d)**

−2

tan θ = √3 ⇒ θ = 60° ⇒ $\text{cosec}^2\theta = 4/3$, $\sec^2\theta = 4$।

(4/3 + 4)/(4/3 − 4) = (16/3)/(−8/3) = **−2**।

Q5 **Ans (b)**

cosec θ

sec θ + tan θ = p ⇒ sec θ − tan θ = 1/p ⇒ $\sec\theta = (p^2 + 1)/(2p)$, $\tan\theta = (p^2 - 1)/(2p)$।

$(p^2 + 1)/(p^2 - 1) = \sec\theta/\tan\theta = 1/\sin\theta =$ **cosec θ**।

Q6 **Ans (a)**

30°

sin θ = cos(θ + 30°) = sin(60° − θ) ⇒ θ = 60° − θ ⇒ **θ = 30°**।

Q7 **Ans (a)**

1

$1 + \tan^2 A = \sec^2 A$ ⇒ अनुपात = **1**।

Q8 **Ans (d)**

30°

tan x = cot(3x − 30°) ⇒ x + 3x − 30° = 90° ⇒ **x = 30°**।

Q9 **Ans (d)**

tanC − tanA − tanB

tan C = tan(A + B) = (tan A + tan B)/(1 − tan A tan B) ⇒ tan C − tan A tan B tan C = tan A + tan B।

⇒ tan A tan B tan C = **tan C − tan A − tan B**।

Q10 **Ans (c)**

आकृति 1

tan(90° − 2θ) = cot 2θ, tan(90° − θ) = cot θ ⇒ cot 2θ · tan 2θ · tan θ · cot θ = **1**।

Q11 **Ans (c)**

$\sin^2\theta \cdot \sec^2\theta$

$(1 - \cos^2\theta)(1 + \tan^2\theta) = \sin^2\theta \cdot \sec^2\theta \Rightarrow$ **$\sin^2\theta \cdot \sec^2\theta$** $(= \tan^2\theta)$।

Q12 **Ans (d)**

$\frac{8}{5}$

2 sin θ cos θ = 9/4 − 1 = 5/4 ⇒ sin θ cos θ = 5/8 ⇒ tan θ + cot θ = **8/5**।

Q13 **Ans (b)**

आकृति 1

$\sin^2\theta = 1 - \cos^2\theta =$ **1**।

Q14 **Ans (c)**

0.68

$\sin^4\theta + \cos^4\theta = 1 - 2\sin^2\theta\cos^2\theta = 1 - (\sin 2\theta)^2/2 = 1 - 0.64/2 =$ **0.68**।

Q15 **Ans (c)**

1.968

sin x cos x = sin y cos y ⇒ sin 2x = sin 2y ⇒ x + y = 90° (x ≠ y)।

$\sin^2 x - \sin^2 y = \sin^2 x - \cos^2 x = -\cos 2x = 1/4 \Rightarrow \sin 2x = \sqrt{15}/4 \approx 0.968$।

(sin x + cos x)(sin y + cos y) = $(\sin x + \cos x)^2 = 1 + \sin 2x \approx$ **1.968**।

Q16 **Ans (b)**

$\frac{\sqrt{6}}{2}$

$(\sin A - \cos A)^2 = 1/2 \Rightarrow 2 \sin A \cos A = 1/2 \Rightarrow (\sin A + \cos A)^2 = 3/2 \Rightarrow$ **√6/2**।

Q17 **Ans (b)**

$\frac{5}{3}$

अंश = 5(4) - 3(3) + 16(1/4) = 20 - 9 + 4 = 15; हर = 2√3 · √3 + 4(3/4) = 6 + 3 = 9।
मान = 15/9 = **5/3**।

Q18 **Ans (a)**

आकृति 1

cos 55° = sin 35° ⇒ **1**।

Q19 **Ans (c)**

60°

cos θ[(1 + sin θ) + (1 - sin θ)]/(1 - sin²θ) = 2/cos θ = 4 ⇒ cos θ = 1/2 ⇒ **θ = 60°**।

Q20 **Ans (c)**

$-\frac{3}{2}$

cos²θ से भाग देने पर: (1 + tan²θ)/(1 - tan²θ) = (1 + 5)/(1 - 5) = **-3/2**।

Q21 **Ans (a)**

$\frac{2\pi}{3}$ radians

3 से 7 = 4 घंटे ⇒ hour hand = 4 × 30° = 120° = **2π/3 radian**।

Q22 **Ans (c)**

$-\frac{7}{3}$

tan A = 5/2 ⇒ sin A = 5k, cos A = 2k (k = 1/√29)। C = 90° - A ⇒ cos C = 5k, sin C = 2k।
[5(5 + 2)]/[5(2 - 5)] = 35/(-15) = **-7/3**।

Q23 **Ans (b)**

II

2π/3 = 120° ⇒ **दूसरा चतुर्थांश (II)**।

Q24 **Ans (c)**

$\frac{20}{29}$

20² + 21² = 29² ⇒ अधिकतम मान तभी जब sin θ = 20/29, cos θ = 21/29 ⇒ **sin θ = 20/29**।

Q25 **Ans (c)**

75°

π/3 = 60° ⇒ तीसरा कोण = 180 - 60 - 45 = **75°**।

Mock Set 02 Q26–Q50 · 7 Oct → 10 Oct

TOPIC · Trigonometry (2/6)

Q26 If $\sin A = \frac{4}{5}$ and $\cos B = \frac{5}{13}$, where A and B are acute angles, then what is the value of sin A cos B?

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\frac{20}{65}$ (b) $-\frac{20}{65}$ (c) $\frac{16}{65}$ (d) $\frac{56}{65}$

Q27 In triangle PQR, right-angled at Q, if $\tan P = \frac{1}{\sqrt{3}}$, find sin R.

SSC CGL 2026 · 7 Oct 2026 · Shift-1

(a) $\frac{1}{\sqrt{2}}$ (b) $\frac{1}{2}$ (c) 1 (d) $\frac{\sqrt{3}}{2}$

Q28 If cot A = 7, then find the value of $\frac{5\cos A + 4\sin A}{\cos^3 A + 7\sin^3 A + 6\sin A}$.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 1 (b) 3 (c) 2 (d) 4

Q29 In a right triangle ABC with ∠B = 90°, sin²A + sin²C = ?

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 1 (b) 0 (c) 2 (d) sin²A

Q30 Solve for acute θ: sin(θ + 15°) = cos(θ - 15°)

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 90° (b) 30° (c) 60° (d) 45°

Q31 If secθ = 13/12, then find the value of tan²θ.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 25/144 (b) 2/144 (c) 25/14 (d) 169/144

Q32 If 0° < θ < 90°, find the value of $\sqrt{\frac{1+\sin\theta}{1-\sin\theta}} - \tan\theta$.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) sinθ (b) cosθ (c) secθ (d) tanθ

Q33 If $\sqrt{5}\sin\theta = 1$, find the value of $\frac{2\tan\theta + \sqrt{5}\sin\theta}{\sqrt{5}\cos\theta - 2\tan\theta}$.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 5 (b) 4 (c) 2 (d) 1

Q34 Evaluate: $\frac{\sec 73^\circ}{\text{cosec } 17^\circ} - 1$ cosec

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 0 (b) -1 (c) 1 (d) 2

Q35 If $\sin\theta + \cos\theta = \sqrt{2}$, then what is the value of $\sin^4\theta + \cos^4\theta$?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 1 (b) 1/2 (c) 3/4 (d) 0

Q36 If $\tan\theta = \frac{1}{2}$, find the value of $\frac{\text{cosec}^2\theta + \sec^2\theta}{\text{cosec}^2\theta - \sec^2\theta} \cdot \text{cosec}$

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) $-\frac{5}{3}$ (b) $\frac{3}{5}$ (c) $\frac{5}{3}$ (d) $-\frac{3}{5}$

Q37 If the difference between two complementary angles is $\frac{\pi}{6}$ radians, what are the two angles in degrees?

SSC CGL 2026 · 8 Oct 2026 · Shift-2

(a) 60° and 30° (b) 40° and 20° (c) 30° and 30° (d) 10° and 20°

Q38 If $\tan\theta = 0$, then $\sec^2\theta$ equals?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) -1 (b) 0 (c) 2 (d) 1

Q39 In a mechanical system designed to dampen vibrations, two rotating components operate at angles whose tangent values sum to 3 and multiply to 2. To determine the resulting vibration amplitude during phase overlap, the sine of the sum of these angles is required. If two angles have tangent values such that their sum is 3 and product is 2, find the sine of the sum of the two angles.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 0.9487 (b) (-0.9487) (c) 0.5 (d) (-0.5)

Q40 In a virtual reality simulation, a character's movement follows a smooth arc defined by an angle θ relative to a reference axis. During one animation frame, developers notice that the sum of sine and cosine of the angle θ is equal to 1. To fine-tune motion rendering, the graphics engine estimates rotational energy using the sum of the cubes of sine and cosine of θ. What is the value of $\sin^3\theta + \cos^3\theta$, given that $\sin\theta + \cos\theta = 1$?

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 0 (b) 1 (c) -1 (d) 2

Q41 If $\cos\theta = \frac{5}{13}$ and θ is an acute angle, find $4(\text{cosec}\theta - \cot\theta)$.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) $\frac{2}{3}$ (b) $\frac{5}{12}$ (c) $\frac{13}{12}$ (d) $\frac{8}{3}$

Q42 If $\tan\theta = \frac{3}{4}$ and θ is an acute angle, find $\text{cosec}\,\theta - \cot\theta$.

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) $\frac{1}{2}$ (b) $\frac{4}{3}$ (c) $\frac{3}{2}$ (d) $\frac{1}{3}$

Q43 If $\sec\theta + \tan\theta = 5$, find the value of $\sin\theta$.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) $\frac{13}{12}$ (b) $\frac{5}{12}$ (c) $\frac{12}{13}$ (d) $\frac{12}{5}$

Q44 In a right triangle ABC with $\angle C = 90°$, if $\sin A = 0.6$, find $\tan B$.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) $\frac{5}{4}$ (b) $\frac{3}{4}$ (c) $\frac{4}{3}$ (d) $\frac{5}{3}$

Q45 Simplify: $\sin^2(90°-\theta) + \sin^2\theta$

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 1 (b) $\sin^2\theta$ (c) $\cos^2\theta$ (d) 0

Q46 If $\cos\theta = 4/5$, find $\tan^2\theta + \sec^2\theta$.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 2 (b) 17/8 (c) 17/4 (d) 5

Q47 What is the value of $\frac{8\cos^2 30^\circ + 4\sin^2 45^\circ - 3\text{cosec}^2 60^\circ}{2\tan^2 60^\circ - 6\text{cosec}\ 30^\circ}$?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 0 (b) $\frac{-2}{3}$ (c) 1 (d) $\frac{2}{3}$

Q48 If $\tan A = m$ and A is an acute angle, what is the value of $\cos A$?

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) $\frac{m}{\sqrt{1+m^2}}$ (b) $\frac{1}{\sqrt{1+m^2}}$ (c) $\sqrt{1+m^2}$ (d) $\frac{1-m}{\sqrt{1+m^2}}$

Q49 Evaluate: $\sin^2 25° + \sin^2 65°$

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) $\frac{\sqrt{3}}{2}$ (b) 0 (c) 2 (d) 1

Q50 If $3\sin\theta - 4\cos\theta = 0$, where $0° < \theta < 90°$, find $\frac{3\sin\theta + \cos\theta}{3\sin\theta + 2\cos\theta}$.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) $\frac{6}{5}$ (b) $\frac{18}{5}$ (c) $\frac{5}{6}$ (d) $\frac{5}{18}$

ANSWER KEY · Mock Set 02				
26 (a)	27 (d)	28 (b)	29 (a)	30 (d)
31 (a)	32 (c)	33 (c)	34 (a)	35 (b)
36 (c)	37 (a)	38 (d)	39 (b)	40 (b)
41 (d)	42 (d)	43 (c)	44 (c)	45 (a)
46 (b)	47 (b)	48 (b)	49 (d)	50 (c)

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 **Ans (a)**

$\frac{20}{65}$

(4/5)(5/13) = **20/65**।

Q27 **Ans (d)**

$\frac{\sqrt{3}}{2}$

tan P = 1/√3 ⇒ P = 30° ⇒ R = 60° ⇒ sin R = **√3/2**।

Q28 **Ans (b)**

आकृति 3

sin³A से भाग: अंश = (5 cot A + 4) cosec²A = 39 × 50 = 1950; हर = cot³A + 7 + 6 cosec²A = 343 + 7 + 300 = 650।
मान = 1950/650 = **3**।

Q29 **Ans (a)**

आकृति 1

A + C = 90° ⇒ sin C = cos A ⇒ sin²A + cos²A = **1**।

Q30 **Ans (d)**

45°

(θ + 15°) + (θ − 15°) = 90° ⇒ **θ = 45°**।

Q31 **Ans (a)**

25/144

tan²θ = sec²θ − 1 = 169/144 − 1 = **25/144**।

Q32 **Ans (c)**

secθ

√[(1 + sin θ)/(1 − sin θ)] = (1 + sin θ)/cos θ = sec θ + tan θ ⇒ − tan θ = **sec θ**।

Q33 **Ans (c)**

आकृति 2

sin θ = 1/√5 ⇒ cos θ = 2/√5, tan θ = 1/2।
अंश = 2(1/2) + 1 = 2; हर = 2 − 1 = 1 ⇒ **2**।

Q34 **Ans (a)**

0

sec 73° = cosec 17° ⇒ 1 − 1 = **0**।

Q35 **Ans (b)**

1/2

2 sin θ cos θ = 2 − 1 = 1 ⇒ sin θ cos θ = 1/2 ⇒ sin⁴θ + cos⁴θ = 1 − 2(1/4) = **1/2**।

Q36 **Ans (c)**

$\frac{5}{3}$

(1 + tan²θ)/(1 − tan²θ) = (5/4)/(3/4) = **5/3**।

Q37 **Ans (a)**

60° and 30°

π/6 = 30°: x + y = 90, x − y = 30 ⇒ **60° और 30°**।

Q38 **Ans (d)**

आकृति 1

sec²θ = 1 + tan²θ = **1**।

Q39 **Ans (b)** **DEBATABLE**

(−0.9487)

tan(A + B) = 3/(1 − 2) = −3। दोनों tan धनात्मक (1 और 2) ⇒ A = 45°, B ≈ 63.43° ⇒ A + B ≈ 108.43° ⇒ sin(A + B) = 3/√10 ≈ +0.9487।

⚠ **Key Note:** Debatable – न्यून कोणों के लिए sin(A + B) धनात्मक (+0.9487) आता है, यानी विकल्प (a)। SSC key **(b) −0.9487** है।

Q40 **Ans (b)**

आकृति 1

sin θ + cos θ = 1 ⇒ sin θ cos θ = 0 ⇒ sin³θ + cos³θ = (sin θ + cos θ)(1 − sin θ cos θ) = **1**।

Q41 **Ans (d)**

$\frac{8}{3}$

cos θ = 5/13 ⇒ sin θ = 12/13 ⇒ cosec θ − cot θ = (13 − 5)/12 = 2/3 ⇒ 4 × 2/3 = **8/3**।

Q42 **Ans (d)**

$\frac{1}{3}$

sin θ = 3/5, cos θ = 4/5 ⇒ cosec θ - cot θ = 5/3 - 4/3 = **1/3**।

Q43 **Ans (c)**

$\frac{12}{13}$

sec θ - tan θ = 1/5 ⇒ sec θ = 13/5, tan θ = 12/5 ⇒ sin θ = tan θ/sec θ = **12/13**।

Q44 **Ans (c)**

$\frac{4}{3}$

sin A = 0.6 ⇒ cos A = 0.8 ⇒ tan B = cot A = 0.8/0.6 = **4/3**।

Q45 **Ans (a)**

आकृति 1

sin²(90° - θ) = cos²θ ⇒ cos²θ + sin²θ = **1**।

Q46 **Ans (b)**

17/8

sec²θ = 25/16, tan²θ = 9/16 ⇒ योग = 34/16 = **17/8**।

Q47 **Ans (b)**

$\frac{-2}{3}$

अंश = 8(3/4) + 4(1/2) - 3(4/3) = 6 + 2 - 4 = 4; हर = 2(3) - 6(2) = -6 ⇒ **-2/3**।

Q48 **Ans (b)**

$\frac{1}{\sqrt{1+m^2}}$

cos A = 1/sec A = 1/√(1 + tan²A) = **1/√(1 + m²)**।

Q49 **Ans (d)**

1

sin 65° = cos 25° ⇒ sin²25° + cos²25° = **1**।

Q50 **Ans (c)**

$\frac{5}{6}$

tan θ = 4/3। cos θ से भाग: (3 tan θ + 1)/(3 tan θ + 2) = 5/6 ⇒ **5/6**।

Mock Set 03 Q51–Q75 · 10 Oct → 16 Oct

TOPIC · Trigonometry (3/6)

Q51 **Evaluate the following expression:**

$\frac{4}{3}\cot^2 30^\circ + 3\sin^2 60^\circ - 2\text{cosec}^2 60^\circ - \frac{3}{4}\tan^2 30^\circ$

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) $\frac{8}{3}$ (b) $\frac{14}{3}$ (c) $\frac{4}{3}$ (d) $\frac{10}{3}$

Q52 **In triangle ABC, right-angled at B, if tan A = $\frac{1}{3}$, find the value of $\frac{\sin A(\cos C+\cos A)}{\cos C(\sin C-\sin A)}$.**

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) -2 (b) $\frac{1}{2}$ (c) 2 (d) $-\frac{1}{2}$

Q53 **If $\text{cosec}\,\theta - \cot\theta = p$, find the value of $\frac{p^2-1}{p^2+1}$.**

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) $\cos\theta$ (b) $\sin\theta$ (c) $-\cos\theta$ (d) $-\sin\theta$

Q54 **Solve for acute θ: $\tan(\theta + 24^\circ) = \cot(\theta - 12^\circ)$**

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 36° (b) 33° (c) 39° (d) 42°

Q55 **In a right triangle XYZ with $\angle Y = 90^\circ$, if $\angle X = 2\angle Z$, find cos X.**

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{1}{\sqrt{2}}$ (d) $\sqrt{3}$

Q56 **If secA=13/12, find tanA**

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 5/12 (b) 7/12 (c) 17/2 (d) 19/18

Q57 **If $\sin A + \cos A = \frac{4}{3}$, then find the value of $\tan A + \cot A$.**

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) $\frac{5}{4}$ (b) $\frac{7}{18}$ (c) $\frac{4}{5}$ (d) $\frac{18}{7}$

Q58 **If the minute hand of a clock rotates through an angle of $\frac{7\pi}{6}$ radians. How many minutes does this represent?**

SSC CGL 2026 · 12 Oct 2026 · Shift-2

(a) 30 minutes (b) 35 minutes (c) 40 minutes (d) 45 minutes

Q59 **If tanθ = 3/4, find the value of (1 + sinθ)(1 - sinθ).**

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 7/25 (b) 9/25 (c) 16/25 (d) 1

Q60 If $0^\circ < \theta < 90^\circ$, find the value of $1 + \sqrt{\frac{\tan\theta+\sin\theta}{\tan\theta-\sin\theta}}$.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) $1 + \operatorname{cosec}\theta + \cot\theta$ (b) $1 + \operatorname{cosec}\theta - \cot\theta$
(c) $1 + \sec\theta + \tan\theta$ (d) $1 + \sec\theta - \tan\theta$

Q61 If $\cos^2\theta = \frac{1}{2}$ and $0^\circ \le \theta \le 90^\circ$, how many distinct values of θ satisfy this equation?

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 2 (b) 3 (c) 1 (d) 6

Q62 Evaluate: $\tan 42^\circ \tan 48^\circ - \cot 48^\circ \cot 42^\circ$

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 1 (b) 0 (c) 2 (d) -1

Q63 If $3\sin\theta + 4\cos\theta = 5$, find the value of $\sin\theta$.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) $\frac{6}{5}$ (b) $\frac{4}{5}$ (c) $\frac{3}{5}$ (d) $\frac{1}{5}$

Q64 If $5\sin\theta + 12\cos\theta = 13$, then find the value of $\sin\theta$.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) $\frac{2}{13}$ (b) $\frac{5}{13}$ (c) $\frac{11}{13}$ (d) $\frac{12}{13}$

Q65 In a triangle ABC, right-angled at B, if $\cot A = 2$, find the value of $\frac{\sin A(\cos C+\cos A)}{\cos C(\sin C-\sin A)}$.

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) $\frac{1}{3}$ (b) -3 (c) $-\frac{1}{3}$ (d) 3

Q66 If $\tan\alpha$ and $\tan\beta$ are roots of $x^2 - px + q = 0$, find $\cos^2(\alpha+\beta)$.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) $\frac{1+q^2}{p^2+(1+q)^2}$ (b) $\frac{(1+q)^2}{p^2+(1-q)^2}$ (c) $\frac{1-q^2}{p^2+(1+q)^2}$ (d) $\frac{(1-q)^2}{p^2+(1-q)^2}$

Q67 If $\sqrt{13}\sin\theta = 2$, find the value of $\frac{3\tan\theta+\sqrt{13}\sin\theta}{\sqrt{13}\cos\theta-3\tan\theta}$.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 6 (b) 4 (c) 3 (d) 2

Q68 Solve for acute θ: $\cos 3\theta = \sin 2\theta$

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 45° (b) 30° (c) 22.5° (d) 18°

Q69 Evaluate:
$\cos^2 10^\circ + \cos^2 20^\circ + \cos^2 30^\circ + \cos^2 40^\circ + \cos^2$
$\cos^2 60^\circ + \cos^2 70^\circ + \cos^2 80^\circ$

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) 3 (b) 4 (c) 5 (d) 2

Q70 If sec²A + tan²A = 10, then find sec⁴A - tan⁴A.

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 1 (b) 10 (c) 20 (d) 25

Q71 If sinA = 3/5, and A is acute, find the value of sin²A + cos²A + tan²A.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) 3 (b) 2 (c) 25/16 (d) 5

Q72 If $\tan\theta = 2$, find the value of $\frac{\sec^2\theta-\operatorname{cosec}^2\theta}{\sec^2\theta+\operatorname{cosec}^2\theta}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-1

(a) $\frac{3}{5}$ (b) $\frac{2}{5}$ (c) $-\frac{3}{5}$ (d) $-\frac{2}{5}$

Q73 If $\frac{(7\sin\theta+4\cos\theta)}{(9\sin\theta-2\cos\theta)} = \frac{5}{4}$, then the value of $\frac{(\tan^2\theta+5)}{(\tan^2\theta-5)}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $-\frac{2121}{769}$ (b) $\frac{2121}{769}$ (c) $\frac{769}{2121}$ (d) $-\frac{769}{2121}$

Q74 In a triangle ABC, right-angled at B, if cot A = $\frac{1}{2}$, find the value of $\frac{\sin A(\cos C+\cos A)}{\cos C(\sin C-\sin A)}$.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 2 (b) -3 (c) -2 (d) 3

Q75 Convert π radians to degrees.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 180° (b) 90° (c) 360° (d) 270°

ANSWER KEY · Mock Set 03

51 (d)	52 (c)	53 (c)	54 (c)	55 (a)
56 (a)	57 (d)	58 (b)	59 (c)	60 (a)
61 (c)	62 (b)	63 (c)	64 (b)	65 (d)
66 (d)	67 (b)	68 (d)	69 (b)	70 (b)
71 (c)	72 (a)	73 (a)	74 (b)	75 (a)

Mock Set 03 · Solutions

Answer · Explanation · Key facts

Q51 **Ans (d)**

$\frac{10}{3}$

(4/3)(3) + 3(3/4) - 2(4/3) - (3/4)(1/3) = 4 + 9/4 - 8/3 - 1/4 = **10/3**।

Q52 **Ans (c)**

आकृति 2

tan A = 1/3 ⇒ sin A = k, cos A = 3k; cos C = k, sin C = 3k ⇒ [k(k + 3k)]/[k(3k - k)] = 4/2 = **2**।

Q53 **Ans (c)**

$-\cos\theta$

cosec θ - cot θ = p ⇒ cosec θ + cot θ = 1/p ⇒ cot θ = (1 - p²)/(2p), cosec θ = (1 + p²)/(2p)।
(p² - 1)/(p² + 1) = -cot θ/cosec θ = **-cos θ**।

Q54 **Ans (c)**

39°

(θ + 24°) + (θ - 12°) = 90° ⇒ 2θ = 78° ⇒ **θ = 39°**।

Q55 **Ans (a)**

$\frac{1}{2}$

X + Z = 90°, X = 2Z ⇒ X = 60° ⇒ cos X = **1/2**।

Q56 **Ans (a)**

5/12

tan A = √(sec²A - 1) = √(25/144) = **5/12**।

Q57 **Ans (d)**

$\frac{18}{7}$

2 sin A cos A = 16/9 - 1 = 7/9 ⇒ sin A cos A = 7/18 ⇒ tan A + cot A = **18/7**।

Q58 **Ans (b)**

35 minutes

7π/6 = 210°; minute hand 6° प्रति मिनट ⇒ 210/6 = **35 मिनट**।

Q59 **Ans (c)**

16/25

(1 + sin θ)(1 - sin θ) = cos²θ = (4/5)² = **16/25**।

Q60 **Ans (a)**

$1 + \operatorname{cosec}\theta + \cot\theta$

√[(tan θ + sin θ)/(tan θ - sin θ)] = √[(1 + cos θ)/(1 - cos θ)] = (1 + cos θ)/sin θ = cosec θ + cot θ।
मान = **1 + cosec θ + cot θ**।

Q61 **Ans (c)**

आकृति 1

cos²θ = 1/2 ⇒ cos θ = 1/√2 (0°–90° में) ⇒ केवल θ = 45° ⇒ **1** मान।

Q62 **Ans (b)**

0

tan 42° tan 48° = 1 और cot 48° cot 42° = 1 ⇒ **0**।

Q63 **Ans (c)**

$\frac{3}{5}$

3² + 4² = 5² ⇒ sin θ = 3/5, cos θ = 4/5 ⇒ **sin θ = 3/5**।

Q64 **Ans (b)**

$\frac{5}{13}$

5² + 12² = 13² ⇒ **sin θ = 5/13**।

Q65 **Ans (d)**

आकृति 3

cot A = 2 ⇒ sin A = k, cos A = 2k; cos C = k, sin C = 2k ⇒ [k(k + 2k)]/[k(2k - k)] = **3**।

Q66 **Ans (d)**

$\frac{(1-q)^2}{p^2+(1-q)^2}$

tan α + tan β = p, tan α tan β = q ⇒ tan(α + β) = p/(1 - q)।
cos²(α + β) = 1/(1 + tan²) = **(1 - q)²/[p² + (1 - q)²]**।

Q67 **Ans (b)**

आकृति 4

sin θ = 2/√13 ⇒ cos θ = 3/√13, tan θ = 2/3।
अंश = 2 + 2 = 4; हर = 3 - 2 = 1 ⇒ **4**।

Q68 **Ans (d)**

18°

cos 3θ = sin 2θ ⇒ 3θ + 2θ = 90° ⇒ **θ = 18°**।

Q69 **Ans (b)**

आकृति 4

cos²80° = sin²10° आदि ⇒ (10°, 80°), (20°, 70°), (30°, 60°), (40°, 50°) के 4 जोड़े, हर जोड़ा 1 ⇒ **4**।

Q70 **Ans (b)**

10

sec⁴A - tan⁴A = (sec²A - tan²A)(sec²A + tan²A) = 1 × 10 = **10**।

Q71 **Ans (c)**

25/16

sin²A + cos²A = 1, tan²A = 9/16 ⇒ **25/16**।

Q72 **Ans (a)**

$\frac{3}{5}$

s²c² से गुणा: (sin²θ - cos²θ)/(sin²θ + cos²θ) = (tan²θ - 1)/(tan²θ + 1) = 3/5 ⇒ **3/5**।

Q73 **Ans (a)**

$-\frac{2121}{769}$

4(7 sin θ + 4 cos θ) = 5(9 sin θ - 2 cos θ) ⇒ 17 sin θ = 26 cos θ ⇒ tan θ = 26/17 ⇒ tan²θ = 676/289।
(676 + 1445)/(676 - 1445) = **-2121/769**।

Q74 **Ans (b)**

-3

cot A = 1/2 ⇒ sin A = 2k, cos A = k; cos C = 2k, sin C = k ⇒ [2k(2k + k)]/[2k(k - 2k)] = 6/(-2) = **-3**।

Q75 **Ans (a)**

180°

π radian = **180°**।

Mock Set 04 Q76–Q100 · 16 Oct → 23 Oct

TOPIC · Trigonometry (4/6)

Q76 If cosec θ + cot θ = $\frac{5}{2}$, find the value of tan θ.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) $\frac{20}{21}$ (b) $\frac{2}{5}$ (c) $\frac{21}{20}$ (d) $\frac{5}{2}$

Q77 If cosA = $\frac{1}{2}$ and sinB = $\frac{1}{2}$, where A and B are acute angles, then find the value of A – B.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 30° (b) 45° (c) 60° (d) 90°

Q78 If tan A = cot B and cos A = sin(90°–2B) for acute angles, find A and B.

SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) A=30°, B=60° (b) A=60°, B=30°
(c) A=45°, B=45° (d) A=50°, B=40°

Q79 Convert 3π radians to degrees.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 540° (b) 50° (c) 510° (d) 70°

Q80 If tanθ + cotθ = 2, then what is the value of tan²θ + cot²θ?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 2 (b) 4 (c) 6 (d) 8

Q81 If $sec^2X + cosec^2X = 4$, what is the value of sinX cosX? (Assume X is an acute angle.)

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) 1 (d) 2

Q82 If the radii of two circles are in the ratio 2:3 and arcs of equal length on them subtend angles θ_1 and θ_2 at their centers, find $\frac{\theta_1}{\theta_2}$.

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) $\frac{3}{2}$ (b) $\frac{2}{3}$ (c) 1 (d) $\frac{4}{9}$

Q83 If A + B = 90°, what is tan A · tan B equal to?

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 2 (b) 0 (c) 1 (d) cot²A

Q84 If cosθ = 1, what is sin²θ?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 2 (b) 1 (c) 0 (d) -1

Q85 A student notes tanθ = 3/4. What is the value of sec²θ?

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 25/16 (b) 11/25 (c) 16/25 (d) 9/25

Q86 It is given that sinθ = 3/5. If θ is acute, find cos²θ.

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 16/25 (b) 18/25 (c) 25/16 (d) 14/25

Q87 Convert 20° to radians.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) π/9 (b) 5π/6 (c) π/6 (d) 11π/6

Q88 If tanθ=3/4, then find secθ.

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 4/3 (b) 5/4 (c) 5/3 (d) 5/2

Q89 In a right-angled triangle ABC right-angled at C, what is the value of tanA · tanB?

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 0 (b) 1 (c) 2 (d) -1

Q90 Evaluate: cosec 31° – sec 59°

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 2 (b) 1 (c) -1 (d) 0

Q91 A machine rotates at 30π radians per second. Find the number of revolutions it makes in one minute.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 400 (b) 600 (c) 500 (d) 900

Q92 If $\sin\theta = \frac{8}{17}$ and θ is an acute angle, find the value of $6(\text{cosec}\,\theta - \cot\theta)$.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) $\frac{1}{3}$ (b) $\frac{3}{2}$ (c) $\frac{4}{3}$ (d) $\frac{5}{2}$

Q93 If $\sin\theta + \cos\theta = \sqrt{2}\cos\theta$ for an acute angle θ, then what is the value of $\cos\theta - \sin\theta$?

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) $\sqrt{2}\sin\theta$ (b) $\sqrt{2}\cos\theta$ (c) $\frac{1}{\sqrt{2}}\sin\theta$ (d) $\sqrt{3}\cos\theta$

Q94 If $x = A\sin\theta$ and $y = A\cos\theta$, find $x^2 + y^2$.

SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) A (b) A^2 (c) $2A^2$ (d) 0

Q95 Convert $-90°$ to radians.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) $-\pi/2$ (b) $-\pi$ (c) $-\pi/7$ (d) $-\pi/42$

Q96 What is the value of $(1 + \tan^2\theta) \times \cos^2\theta$?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 1 (b) $\sin^2\theta$ (c) $\sec^2\theta$ (d) $\tan^2\theta$

Q97 If A and B are acute angles such that $\tan A \cdot \tan B = 1$, what is the value of A + B?

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 0° (b) 90° (c) 180° (d) 270°

Q98 A wheel rotates through $4\frac{2}{3}$ revolutions. Express this total rotation in degrees.

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 840° (b) 1560° (c) 1680° (d) 1920°

Q99 Simplify: $\cot A + \tan(90° - A)$

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) $\tan^2 A$ (b) 2 cot A (c) cot A (d) tan A

Q100 If $\text{cosec}\,\theta + \cot\theta = 3$, find the value of $\sin\theta$.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) $\frac{10}{3}$ (b) $\frac{2}{5}$ (c) $\frac{3}{5}$ (d) $\frac{1}{3}$

ANSWER KEY · Mock Set 04

76 (a)	77 (a)	78 (b)	79 (a)	80 (a)
81 (b)	82 (a)	83 (c)	84 (c)	85 (a)
86 (a)	87 (a)	88 (b)	89 (b)	90 (d)
91 (d)	92 (b)	93 (a)	94 (b)	95 (a)
96 (a)	97 (b)	98 (c)	99 (b)	100 (c)

Mock Set 04 · Solutions

Answer · Explanation · Key facts

Q76 Ans (a)

$\frac{20}{21}$

cosec θ - cot θ = 2/5 ⇒ cosec θ = (5/2 + 2/5)/2 = 29/20, cot θ = 21/20 ⇒ tan θ = **20/21**।

Q77 Ans (a)

30°

A = 60°, B = 30° ⇒ A - B = **30°**।

Q78 Ans (b)

A=60°, B=30°

tan A = cot B ⇒ A + B = 90°; cos A = cos 2B ⇒ A = 2B ⇒ **A = 60°, B = 30°**।

Q79 Ans (a)

540°

3π = 3 × 180° = **540°**।

Q80 Ans (a)

आकृति 2

tan θ = 1 ⇒ tan²θ + cot²θ = **2**।

Q81 Ans (b)

$\frac{1}{2}$

sec²X + cosec²X = 1/(sin²X cos²X) = 4 ⇒ sin X cos X = **1/2**।

Q82 Ans (a)

$\frac{3}{2}$

चाप = rθ बराबर ⇒ $\theta_1/\theta_2 = r_2/r_1$ = **3/2**।

Q83 Ans (c)

1

B = 90° - A ⇒ tan B = cot A ⇒ tan A · cot A = **1**।

Q84 **Ans (c)**

0

$\sin^2\theta = 1 - 1 =$ **0**।

Q85 **Ans (a)**

25/16

$\sec^2\theta = 1 + 9/16 =$ **25/16**।

Q86 **Ans (a)**

16/25

$\cos^2\theta = 1 - 9/25 =$ **16/25**।

Q87 **Ans (a)**

π/9

$20° \times \pi/180 =$ **π/9**।

Q88 **Ans (b)**

5/4

$\sec\theta = \sqrt{(1 + 9/16)} =$ **5/4**।

Q89 **Ans (b)**

1

$A + B = 90° \Rightarrow \tan A \tan B =$ **1**।

Q90 **Ans (d)**

0

$\text{cosec } 31° = \sec 59° \Rightarrow$ **0**।

Q91 **Ans (d)**

900

30π rad/s = 15 चक्कर/s ⇒ 1 मिनट में **900**।

Q92 **Ans (b)**

$\frac{3}{2}$

$\sin\theta = 8/17 \Rightarrow \cos\theta = 15/17 \Rightarrow \text{cosec}\,\theta - \cot\theta = (17 - 15)/8 = 1/4 \Rightarrow 6 \times 1/4 =$ **3/2**।

Q93 **Ans (a)**

$\sqrt{2}\sin\theta$

$\sin\theta = (\sqrt{2} - 1)\cos\theta \Rightarrow \cos\theta = \sin\theta/(\sqrt{2} - 1) = (\sqrt{2} + 1)\sin\theta \Rightarrow \cos\theta - \sin\theta =$ **$\sqrt{2}\sin\theta$**।

Q94 **Ans (b)**

A^2

$x^2 + y^2 = A^2(\sin^2\theta + \cos^2\theta) =$ **A^2**।

Q95 **Ans (a)**

$-\pi/2$

$-90° =$ **$-\pi/2$**।

Q96 **Ans (a)**

आकृति 1

$\sec^2\theta \times \cos^2\theta =$ **1**।

Q97 **Ans (b)**

90°

$\tan A \cdot \tan B = 1 \Rightarrow \tan A = \cot B \Rightarrow$ **$A + B = 90°$**।

Q98 **Ans (c)**

1680°

$14/3 \times 360° =$ **1680°**।

Q99 **Ans (b)**

2 cot A

$\tan(90° - A) = \cot A \Rightarrow$ **2 cot A**।

Q100 **Ans (c)**

$\frac{3}{5}$

$\text{cosec}\,\theta - \cot\theta = 1/3 \Rightarrow \text{cosec}\,\theta = (3 + 1/3)/2 = 5/3 \Rightarrow \sin\theta =$ **3/5**।

Mock Set 05 Q101–Q125 · 23 Oct → 27 Oct

TOPIC · Trigonometry (5/6)

Q101 If 5 cot θ = 12, find the value of $\frac{5\cos\theta - \sin\theta}{5\cos\theta + \sin\theta}$.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) $\frac{6}{13}$ (b) $\frac{7}{13}$ (c) $\frac{11}{13}$ (d) $\frac{12}{13}$

Q102 Convert π/6 radians to degrees.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 60° (b) 45° (c) 30° (d) 90°

Q103 If $\cos\theta + \cos^2\theta = 1$, find the value of $\sin^2\theta + \sin^4\theta$.

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 0 (b) 2 (c) 1 (d) -1

Q104 If sinθ + cosecθ = 2, what is the value of $\sin^n\theta + \csc^n\theta$ for any positive integer n?

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 2 (b) 2^n (c) 2^{n-1} (d) 0

Q105 A mechanical arm in a robotic assembly line rotates through an angle of $3\pi/4$ radians during a precise welding operation. What is the measure of this rotation angle in degrees?

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 120° (b) 135° (c) 145° (d) 150°

Q106 Simplify: $\frac{\sin 75^\circ - \sin 15^\circ}{\cos 15^\circ - \cos 75^\circ}$

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 1 (b) 0 (c) sin 60° (d) cos 60°

Q107 If tanA + cotA = 2, then tan²A + cot²A = ?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 4 (b) 5 (c) 6 (d) 2

Q108 What is the value of $\sin^2 10^\circ + \sin^2 20^\circ + \sin^2 30^\circ + \cdots + \sin^2 80^\circ$?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 1 (b) 2 (c) 3 (d) 4

Q109 If tanθ = 1, find sec²θ.

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 2 (b) 0 (c) 1 (d) 3

Q110 Convert 210° to radians

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 7π/6 (b) 5π/4 (c) 11π/6 (d) 3π/2

Q111 If $\sin\theta + \cos\theta = \frac{7}{5}$, find the value of $\sin\theta \cdot \cos\theta$.

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) $\frac{2}{25}$ (b) $\frac{13}{25}$ (c) $\frac{12}{25}$ (d) 0

Q112 What is the value of $25\sec^2\theta - 25\tan^2\theta + 16\csc^2\theta - 16\cot^2\theta$ for an acute angle θ?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 41 (b) 49 (c) 81 (d) 20

Q113 How many solutions does the equation sinθ = 1/2 have for 0° ≤ θ ≤ 90°?

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 1 (b) 2 (c) 3 (d) 4

Q114 Evaluate: $\frac{\sin\theta}{\cos(90^\circ - \theta)} + \frac{\cos\theta}{\sin(90^\circ - \theta)}$

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) -2 (b) 1 (c) 2 (d) -1

Q115 If $\tan\theta_1 \cdot \tan\theta_2 = 2$, then find the value of $\frac{\cos(\theta_1 - \theta_2)}{\cos(\theta_1 + \theta_2)}$.

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) -3 (b) 3 (c) -4 (d) 4

Q116 The angles of a pentagon are in the ratio 1 : 2 : 3 : 4 : 5. What is the second largest angle in radians?

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) $\frac{4\pi}{5}$ radians (b) $\frac{2\pi}{5}$ radians

(c) $\frac{\pi}{5}$ radians (d) $\frac{\pi}{7}$ radians

Q117 In a right triangle ABC with ∠B = 90°, simplify: $\frac{\sin A + \cos C}{\sin C + \cos A}$

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) cot A (b) tan A (c) 1 (d) sin A

Q118 Simplify: $\frac{\tan A + \cot A}{\sec A \cdot \csc A}$.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 0 (b) 1 (c) 3 (d) 2

Q119 If $k \cdot \tan 45^\circ \cdot \sin 60^\circ \cdot \cos 30^\circ = \frac{\sec^2 45^\circ \cdot \cot 30^\circ}{\csc 60^\circ \cdot \tan 60^\circ}$, then find the value of k.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $\frac{4}{\sqrt{7}}$ (b) $\frac{1}{2}$ (c) $\frac{4}{\sqrt{3}}$ (d) $\frac{5}{6}$

Q120 Find the value of $\left(\frac{\cos\theta}{1+\sin\theta} + \frac{1+\sin\theta}{\cos\theta}\right)\left(\frac{1}{\tan\theta + \cot\theta}\right)$.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $2\sin\theta$ (b) $2\tan\theta$ (c) $2\cos\theta$ (d) $\cos\theta$

Q121 Simplify: $\sin\theta \cdot \sec(90^\circ - \theta) - \cos\theta \cdot \csc(90^\circ - \theta) + \tan\theta$ $90^\circ - \theta)$

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $\sin^2\theta$ (b) 1 (c) $\tan^2\theta$ (d) $\sec^2\theta$

Q122 If cosec A + cot A = 7, find the value of tan A.

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) $\frac{24}{7}$ (b) $\frac{5}{12}$ (c) $\frac{7}{24}$ (d) $\frac{12}{5}$

Q123 A clock shows 4:20. What is the angle in radians between the hour hand and the minute hand?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) $\frac{\pi}{18}$ radians (b) $\frac{\pi}{9}$ radians (c) $\frac{\pi}{3}$ radians (d) $\frac{\pi}{16}$ radians

Q124 In a right triangle ABC with ∠B = 90°, sin A = ?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) tan C (b) sin C (c) cos C (d) sec C

Q125 A fan rotates at 120π radians per second. Find the number of revolutions in one minute.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 3000 (b) 3200 (c) 3800 (d) 3600

ANSWER KEY · Mock Set 05

101 (c)	102 (c)	103 (c)	104 (a)	105 (b)
106 (a)	107 (d)	108 (d)	109 (a)	110 (a)
111 (c)	112 (a)	113 (a)	114 (c)	115 (a)
116 (a)	117 (b)	118 (b)	119 (c)	120 (a)
121 (c)	122 (c)	123 (a)	124 (c)	125 (d)

Mock Set 05 · Solutions

Answer · Explanation · Key facts

Q101 Ans (c)

$\frac{11}{13}$

cot θ = 12/5। sin θ से भाग: (5 cot θ − 1)/(5 cot θ + 1) = 11/13 ⇒ **11/13**।

Q102 Ans (c)

30°

π/6 = **30°**।

Q103 Ans (c)

आकृति 1

cos θ = 1 − cos²θ = sin²θ ⇒ sin²θ + sin⁴θ = cos θ + cos²θ = **1**।

Q104 Ans (a)

आकृति 2

sin θ + 1/sin θ = 2 ⇒ sin θ = 1 ⇒ sinⁿθ + cscⁿθ = 1 + 1 = **2**।

Q105 Ans (b)

135°

3π/4 = **135°**।

Q106 Ans (a)

आकृति 1

sin 75° = cos 15°, sin 15° = cos 75° ⇒ अंश = हर ⇒ **1**।

Q107 Ans (d)

2

tan A = 1 ⇒ tan²A + cot²A = **2**।

Q108 Ans (d)

आकृति 4

sin²80° = cos²10° आदि ⇒ 4 जोड़े, हर जोड़ा 1 ⇒ **4**।

Q109 Ans (a)

आकृति 2

sec²θ = 1 + 1 = **2**।

Q110 Ans (a)

7π/6

210° × π/180 = **7π/6**।

Q111 Ans (c)

$\frac{12}{25}$

2 sin θ cos θ = 49/25 − 1 = 24/25 ⇒ sin θ cos θ = **12/25**।

Q112 Ans (a)

41

25(sec²θ − tan²θ) + 16(csc²θ − cot²θ) = 25 + 16 = **41**।

Q113 Ans (a)

आकृति 1

0°–90° में sin θ = 1/2 केवल θ = 30° पर ⇒ **1**।

Q114 Ans (c)

आकृति 2

cos(90° − θ) = sin θ, sin(90° − θ) = cos θ ⇒ 1 + 1 = **2**।

Q115 Ans (a)

−3

cos(θ₁ − θ₂)/cos(θ₁ + θ₂) = (1 + tan θ₁ tan θ₂)/(1 − tan θ₁ tan θ₂) = 3/(−1) = **−3**।

Q116 **Ans (a)**

$\frac{4\pi}{5}$ radians

पंचभुज के कोणों का योग 540° ⇒ 1 भाग = 540/15 = 36° ⇒ दूसरा सबसे बड़ा = 4 × 36 = 144° = **4π/5 radian**।

Q117 **Ans (b)**

tan A

A + C = 90° ⇒ cos C = sin A, sin C = cos A ⇒ 2 sin A/(2 cos A) = **tan A**।

Q118 **Ans (b)**

आकृति 1

tan A + cot A = 1/(sin A cos A) = sec A csc A ⇒ **1**।

Q119 **Ans (c)**

$\frac{4}{\sqrt{3}}$

बायाँ पक्ष = k × 1 × (√3/2)(√3/2) = 3k/4। दायाँ = (2 × √3)/[(2/√3) × √3] = √3।
3k/4 = √3 ⇒ k = 4√3/3 = **4/√3**।

Q120 **Ans (a)**

$2\sin\theta$

पहला भाग = [cos²θ + (1 + sin θ)²]/[cos θ(1 + sin θ)] = 2/cos θ; दूसरा = 1/(tan θ + cot θ) = sin θ cos θ।
गुणनफल = **2 sin θ**।

Q121 **Ans (c)**

$\tan^2\theta$

sin θ · sec(90° − θ) = sin θ · cosec θ = 1; cos θ · csc(90° − θ) = cos θ · sec θ = 1; tan θ · cot(90° − θ) = tan²θ।
1 − 1 + tan²θ = **tan²θ**।

Q122 **Ans (c)**

$\frac{7}{24}$

cosec A − cot A = 1/7 ⇒ cot A = (7 − 1/7)/2 = 24/7 ⇒ tan A = **7/24**।

Q123 **Ans (a)**

$\frac{\pi}{18}$ radians

4:20 पर कोण = |30 × 4 − 5.5 × 20| = |120 − 110| = 10° = **π/18 radian**।

Q124 **Ans (c)**

cos C

A + C = 90° ⇒ sin A = **cos C**।

Q125 **Ans (d)**

3600

120π rad/s = 60 चक्कर/s ⇒ 1 मिनट में **3600**।

Mock Set 06 Q126–Q141 · 27 Oct → 28 Oct

TOPIC · Trigonometry (6/6)

Q126 If secθ = 13/12 and θ is an acute angle, find the value of cosecθ − cotθ.

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) $\frac{12}{5}$ (b) $\frac{5}{13}$ (c) $\frac{1}{5}$ (d) $\frac{1}{12}$

Q127 If tanA = 2tanB and both A and B are acute angles, what is the value of $\frac{\tan A}{\tan B}$?

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) $\frac{1}{2}$ (b) 2 (c) 3 (d) $\frac{1}{3}$

Q128 Evaluate: tan 3° · tan 15° · tan 27° · tan 39° · tan 45° · tan 51° · tan 63° · tan 75° · tan 87°

SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) −1 (b) 0 (c) 1 (d) √3

Q129 Simplify: $\frac{\sin\theta+\cos\theta}{\cos\theta}$

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) secθ (b) tanθ + 1 (c) sinθ + 1 (d) cosθ + 1

Q130 If $\frac{\cos\theta}{1-\sin\theta}+\frac{\cos\theta}{1+\sin\theta}=4$, then what is the value of θ (in degrees) where 0° < θ < 90°?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 45° (b) 60° (c) 75° (d) 90°

Q131 If cotθ = 1, what is cosec²θ?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 1 (b) 4 (c) 3 (d) 2

Q132 A wheel rotates at 50π radians per second. How many revolutions does it make in one minute?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 1200 (b) 1900 (c) 1500 (d) 1800

Q133 If secθ = 17/15 and θ is an acute angle, find 2(cosecθ − cotθ).

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) $\frac{3}{4}$

Q134 If $2\sin\theta - 1 = 0$, what is the value of the acute angle θ?

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 30° (b) 45° (c) 60° (d) 90°

Q135 Evaluate: $\tan 30° \tan 60° - \sec 30° \operatorname{cosec} 60° + \sin^2 30° + \sin^2 60°$

SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) $\frac{4}{3}$ (b) $\frac{2}{3}$ (c) 1 (d) $\frac{5}{3}$

Q136 If $A + B = C$, find the value of $\tan A \tan B \tan C + \tan A + \tan B$.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) tan C (b) tan A + tan B
(c) $\frac{1}{\tan C}$ (d) $\frac{1}{\tan A + \tan B}$

Q137 If $\tan A + \cot B = 2$ and $A + B = 90^\circ$, find A.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 90° (b) 30° (c) 60° (d) 45°

Q138 Simplify: $\sqrt{\frac{1+\sin A}{1-\sin A}}$.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) sin A + cos A (b) sin A + cot A
(c) cos A + tan A (d) sec A + tan A

Q139 If $0^\circ < \theta < 90^\circ$, find the value of $\sqrt{\frac{1-\cos\theta}{1+\cos\theta}} + \cot\theta$.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) cosecθ (b) cosθ (c) secθ (d) tanθ

Q140 If $\cot\theta = \frac{x}{y}$, then find the value of $\frac{x\cos\theta - y\sin\theta}{x\cos\theta + y\sin\theta} - \frac{x^2 - y^2}{x^2 + y^2} + 2$.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $\frac{x}{y}$ (b) 0 (c) $\frac{y}{x}$ (d) 2

Q141 Solve for acute θ: $\sin(\theta + 30°) = \cos(\theta - 18°)$

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) 36° (b) 42° (c) 39° (d) 45°

ANSWER KEY · Mock Set 06

126 (c)	127 (b)	128 (c)	129 (b)	130 (b)
131 (d)	132 (c)	133 (b)	134 (a)	135 (b)
136 (a)	137 (d)	138 (d)	139 (a)	140 (d)
141 (c)				

Mock Set 06 · Solutions

Answer · Explanation · Key facts

Q126 Ans (c)

$\frac{1}{5}$

cos θ = 12/13 ⇒ sin θ = 5/13 ⇒ cosec θ - cot θ = (13 - 12)/5 = **1/5**।

Q127 Ans (b)

आकृति 2

tan A = 2 tan B ⇒ tan A/tan B = **2**।

Q128 Ans (c)

1

tan 3° tan 87° = 1, tan 15° tan 75° = 1, tan 27° tan 63° = 1, tan 39° tan 51° = 1, tan 45° = 1 ⇒ **1**।

Q129 Ans (b)

tanθ + 1

sin θ/cos θ + 1 = **tan θ + 1**।

Q130 Ans (b)

60°

2/cos θ = 4 ⇒ cos θ = 1/2 ⇒ **θ = 60°**।

Q131 Ans (d)

आकृति 2

$\operatorname{cosec}^2\theta = 1 + \cot^2\theta$ = **2**।

Q132 Ans (c)

1500

50π rad/s = 25 चक्कर/s ⇒ **1500** प्रति मिनट।

Q133 Ans (b)

$\frac{1}{2}$

cos θ = 15/17 ⇒ sin θ = 8/17 ⇒ cosec θ - cot θ = 2/8 = 1/4 ⇒ 2 × 1/4 = **1/2**।

Q134 Ans (a)

30°

sin θ = 1/2 ⇒ **θ = 30°**।

Q135 Ans (b)

$\frac{2}{3}$

1 - (2/√3)(2/√3) + 1/4 + 3/4 = 1 - 4/3 + 1 = **2/3**।

Q136 **Ans (a)**

tan C

tan A tan B tan C = tan C − tan A − tan B (Q.9 वाली सर्वसमिका)
⇒ योग = **tan C**।

Q137 **Ans (d)**

45°

B = 90° − A ⇒ cot B = tan A ⇒ 2 tan A = 2 ⇒ **A = 45°**।

Q138 **Ans (d)**

sec A + tan A

√[(1 + sin A)/(1 − sin A)] = (1 + sin A)/cos A = **sec A + tan A**।

Q139 **Ans (a)**

cosecθ

√[(1 − cos θ)/(1 + cos θ)] = (1 − cos θ)/sin θ = cosec θ − cot θ
⇒ + cot θ = **cosec θ**।

Q140 **Ans (d)**

आकृति 2

cot θ = x/y। sin θ से भाग: (x cot θ − y)/(x cot θ + y) = (x² − y²)/(x² + y²) ⇒ पहले दो पद कट जाते हैं ⇒ **2**।

Q141 **Ans (c)**

39°

(θ + 30°) + (θ − 18°) = 90° ⇒ 2θ = 78° ⇒ **θ = 39°**।

GOPAL VERMA ENGLISH अबकी बार, आखिरी बार

CHAPTER 21

Height & Distance

Angle of Elevation · Depression · Towers

46	1	2	3
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Height & Distance

01 30–60 त्रिभुज
भुजाएँ 1 : √3 : 2; 45° पर ऊँचाई = दूरी।

02 दो कोणों से ऊँचाई
h = d·tan α·tan β/(tan β − tan α)।

03 30° → 60° (गति स्थिर)
बची दूरी तय करने का समय = पहले लगे समय का आधा।

Mock Set 01 Q1–Q25 · 30 Sep → 13 Oct

TOPIC · Height and Distance (1/2)

Q1 From a point on the ground, the angle of elevation of the top of a tower is 30°. After walking 40 m towards the tower, the angle of elevation becomes 60°. Find the height of the tower.

SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) $20\sqrt{3}$ m (b) $10\sqrt{3}$ m (c) $30\sqrt{3}$ m (d) $40\sqrt{3}$ m

Q2 Two ships are sailing on the same side of a lighthouse. The angles of elevation of the top of the lighthouse from them are 30° and 45°. The lighthouse is 60 m high. Find the approximate distance between the ships. (Take √3 = 1.732)

SSC CGL 2026 · 1 Oct 2026 · Shift-1

(a) 45 m (b) 44 m (c) 41 m (d) 39 m

Q3 A man observes the top of a tower at an angle of elevation of 60°. After moving 10 meters away from the tower in a straight line, the angle of elevation to the top of the tower reduces to 30°. What is the height of the tower?

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) $2\sqrt{3}$ (b) $5\sqrt{3}$ (c) $7\sqrt{3}$ (d) $11\sqrt{3}$

Q4 A man observes the top of a tower at an angle of 30°. After walking 10 m towards it, the angle becomes 60°. Find the approximate height of the tower.

SSC CGL 2026 · 1 Oct 2026 · Shift-2

(a) 3.7 m (b) 5.7 m (c) 12.7 m (d) 8.7 m

Q5 The angle of elevation of the top of a tower from two points at distances a and b from the base of the tower and in the same straight line with it are 30° and 60° respectively. If the height of the tower is h, find h in terms of b.

SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) $h = b\sqrt{2}$ (b) $b = h\sqrt{3}$ (c) $h \times b = \sqrt{3}$ (d) $h = b\sqrt{3}$

Q6 A man observes the top of a tower at an angle of elevation of 30°. If the distance between the man and the tower is 100 meters, find the height of the tower

SSC CGL 2026 · 5 Oct 2026 · Shift-1

(a) 50 m (b) 57.7 m (c) 100 m (d) 86.6 m

Q7 The length of the shadow of a tower is 9 m when the sun's altitude is 30°. What is the height of the tower?

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 4½ m (b) 9√3 m (c) 3√3 m (d) $\frac{9\sqrt{3}}{2}$ m

Q8 The angles of elevation of the top of a tower from two points on the same line are 45° and 60°. The points are 20 m apart. Find the approximate height of the tower.

SSC CGL 2026 · 6 Oct 2026 · Shift-1

(a) 57.3 m (b) 43.3 m (c) 51.3 m (d) 47.3 m

Q9 A vertical tower stands on a horizontal plane and is surmounted by a vertical flagstaff of height 6 m. At a point on the plane, the angle of elevation of the bottom of the flagstaff is 45° and that of the top of the flagstaff is 60°. Find the height of the tower.

SSC CGL 2026 · 6 Oct 2026 · Shift-2

(a) $4(\sqrt{3}+1)$ m m (b) $2(\sqrt{3}+1)$ m m
(c) $\left(\frac{3}{\sqrt{3}}+1\right)$ (d) $3(\sqrt{3}+1)$

Q10 An observer 1.5 m tall is 28.5 m away from a tower. The angle of elevation of the top of the tower from the observer's eye is 45°. What is the height of the tower?

SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 15 m (b) 20 m (c) 25 m (d) 30 m

Q11 A ladder leaning against a wall makes an angle of 30° with the ground. If the length of the ladder is 10 m, find the distance of the foot of the ladder from the wall.

SSC CGL 2026 · 7 Oct 2026 · Shift-2

(a) 6.66 m (b) 9.66 m (c) 8.66 m (d) 7.66 m

Q12 An observer on top of a cliff 100 m high observes the angles of depression of the top and bottom of a tower to be 30° and 45° respectively. Find the height of the tower.

SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) $100\left(1-\frac{1}{\sqrt{3}}\right)$ m m (b) $25\left(2-\frac{1}{\sqrt{3}}\right)$ m m
(c) $5\left(5-\frac{14}{\sqrt{3}}\right)$ (d) $5\left(15-\frac{2}{\sqrt{3}}\right)$

Q13 A man standing on a tower observes a car approaching him. The angle of depression changes from 30° to 60° in 8 minutes. Find the time taken by the car to reach the tower from that position.

SSC CGL 2026 · 8 Oct 2026 · Shift-1

(a) 5 mins (b) 4 mins (c) 2 mins (d) 6 mins

Q14 From a point on horizontal ground, located 129 meters away from the base of a cliff, the angle of elevation to the cliff's summit is observed to be 30°. Determine the vertical height of the cliff.

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 50√3 m (b) 45√3 m (c) 43√3 m (d) 44√3 m

Q15 An observer 1.5 m tall is 28.5 m away from a chimney. The angle of elevation of the top of the chimney from her eyes is 45°. What is the total height of the chimney?

SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 30 m (b) 40 m (c) 45 m (d) 35 m

Q16 A ladder of length 14 m rests against a wall making an angle of 45° with the ground. Find the distance of the foot from the wall.

SSC CGL 2026 · 9 Oct 2026 · Shift-2

(a) 10.1 m (b) 7.8 m (c) 9.9 m (d) 8.9 m

Q17 A vertical pole of height H is situated at the center of a circular field. If the angle of elevation of the top of the pole from a point on the boundary of the field is 30°, and if the point moves x meters further from the pole, the angle of elevation becomes 15°. Find the height H of the pole.

SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) $\frac{x}{2}$ m (b) $\frac{x}{4}$ m
(c) $\frac{1}{2}$ m (d) $\frac{5}{6}$ m

Q18 Points A and B are on the same side of a tower. The angles of elevation of the top of the tower from A and B are 45° and 60° respectively. The approximate distance between A and B is 40 m. Find the height of the tower (Use √3 = 1.732)

SSC CGL 2026 · 10 Oct 2026 · Shift-1

(a) 99 m (b) 95 m (c) 85 m (d) 90 m

Q19 A man standing on the roof of a 40 m high building observes the angle of depression of the top and bottom of a nearby pole as 30° and 45°, respectively. Find the height of the pole.

SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) $\frac{30}{\sqrt{3}}$ m (b) $40-\frac{40}{\sqrt{3}}$ m
(c) $\frac{40}{\sqrt{3}}$ m (d) $40-\frac{30}{\sqrt{3}}$ m

Q20 Two ships are sailing in the sea on the two sides of a lighthouse. The angles of depression of the two ships as observed from the top of the lighthouse are 30° and 45° respectively. If the distance between the two ships is 100(1 + √3) m, find the height of the lighthouse.

SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 100 m (b) 200 m (c) 300 m (d) 500 m

Q21 A ladder of length 20 m makes an angle of 60° with the ground. Find the distance of the foot from the wall.

SSC CGL 2026 · 12 Oct 2026 · Shift-1

(a) 8 m (b) 13 m (c) 10 m (d) 12 m

Q22 Two ships on the same side of a lighthouse observe angles 30° and 45°. The lighthouse height is 80 m. Find the approximate distance between ships. Take $(\sqrt{3} = 1.732)$

SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 59 m (b) 49 m (c) 50 m (d) 63 m

Q23 A man standing on a tower sees a train approaching. The angle of depression changes from 30° to 60° in 14 minutes. Find the time taken by the train to reach the base of the tower.

SSC CGL 2026 · 13 Oct 2026 · Shift-1

(a) 6 minutes (b) 10 minutes (c) 9 minutes (d) 7 minutes

Q24 From the top of a lighthouse, a ship is seen approaching. The angle of depression changes from 45° to 60° in 6 minutes. Find the approximate time taken to reach the lighthouse from that position.

SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 6 mins (b) 5 mins (c) 8 mins (d) 10 mins

Q25 Two poles of equal height stand on either side of a road 80 m wide. From a point on the road between the poles, the angles of elevation are 60° and 30°. What is the height of each pole?

SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) $20\sqrt{3}$ m (b) $40\sqrt{2}$ m (c) $25\sqrt{7}$ m (d) $35\sqrt{7}$ m

ANSWER KEY · Mock Set 01

1 (a)	2 (b)	3 (b)	4 (d)	5 (d)
6 (b)	7 (d)	8 (d)	9 (d)	10 (d)
11 (c)	12 (a)	13 (b)	14 (c)	15 (a)
16 (c)	17 (a)	18 (b)	19 (b)	20 (a)
21 (c)	22 (a)	23 (d)	24 (c)	25 (a)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (a)

$20\sqrt{3}$ m

h = d × tan 30° tan 60°/(tan 60° − tan 30°) = 40 × 1/(√3 − 1/√3) = 40 × √3/2 = **20√3 m**।

Q2 Ans (b)

44 m

दूरियाँ: 60 cot 30° = 60√3 ≈ 103.92 m और 60 cot 45° = 60 m ⇒ अंतर ≈ **44 m**।

Q3 Ans (b)

$5\sqrt{3}$

h = 10 × 1/(√3 − 1/√3) = 10 × √3/2 = **5√3 m**।

Q4 Ans (d)

8.7 m

h = 10 × √3/2 = 5√3 ≈ **8.7 m**।

Q5 Ans (d)

$h = b\sqrt{3}$

60° वाले बिंदु से: tan 60° = h/b ⇒ **h = b√3**।

Q6 Ans (b)

57.7 m

h = 100 tan 30° = 100/√3 ≈ **57.7 m**।

Q7 Ans (d) DEBATABLE

$\frac{9\sqrt{3}}{2}$ m

ऊँचाई = छाया × tan 30° = 9/√3 = 3√3 m।

⚠ **Key Note:** Debatable – सही गणना से ऊँचाई **3√3 m (c)** आती है। SSC key ने (d) 9√3/2 दिया है।

Q8 **Ans (d)**

47.3 m

h = 20 × tan 45° tan 60°/(tan 60° - tan 45°) = 20√3/(√3 - 1) = 10(3 + √3) ≈ **47.3 m**।

Q9 **Ans (d)**

$3(\sqrt{3}+1)$

45° से: दूरी = h (tower)। 60° से: (h + 6)/h = √3 ⇒ h(√3 - 1) = 6 ⇒ h = 6/(√3 - 1) = **3(√3 + 1) m**।

Q10 **Ans (d)**

30 m

आँख से ऊपर का भाग = 28.5 tan 45° = 28.5 ⇒ कुल = 28.5 + 1.5 = **30 m**।

Q11 **Ans (c)**

8.66 m

दूरी = 10 cos 30° = 10 × 0.866 = **8.66 m**।

Q12 **Ans (a)**

$100\left(1-\frac{1}{\sqrt{3}}\right)$ **m m**

45° ⇒ tower की दूरी = 100 m। ऊँचाई का अंतर = 100 tan 30° = 100/√3।

Tower = **100(1 - 1/√3) m**।

Q13 **Ans (b)**

4 mins

30° पर दूरी h√3, 60° पर h/√3 ⇒ 8 मिनट में 2h/√3 तय ⇒ बची h/√3 के लिए **4 मिनट**।

Q14 **Ans (c)**

43√3 m

h = 129 tan 30° = 129/√3 = **43√3 m**।

Q15 **Ans (a)**

30 m

28.5 + 1.5 = **30 m**।

Q16 **Ans (c)**

9.9 m

14 cos 45° = 14/√2 ≈ **9.9 m**।

Q17 **Ans (a)**

$\frac{x}{2}$ m

सीमा की दूरी r = H√3। 15° पर: H = (r + x) tan 15° = (2 - √3)(H√3 + x)।

H(4 - 2√3) = (2 - √3)x ⇒ **H = x/2 m**।

Q18 **Ans (b)**

95 m

h = 40 × √3/(√3 - 1) = 40 × 1.732/0.732 ≈ **95 m**।

Q19 **Ans (b)**

$40-\frac{40}{\sqrt{3}}$ m

45° ⇒ pole की दूरी = 40 m। Pole के शीर्ष तक अंतर = 40 tan 30° = 40/√3।

Pole = **40 - 40/√3 m**।

Q20 **Ans (a)**

100 m

विपरीत ओर: h cot 30° + h cot 45° = h(√3 + 1) = 100(1 + √3) ⇒ **h = 100 m**।

Q21 **Ans (c)**

10 m

20 cos 60° = **10 m**।

Q22 **Ans (a)**

59 m

80(√3 - 1) = 80 × 0.732 ≈ **59 m**।

Q23 **Ans (d)**

7 minutes

30° → 60°: 2h/√3 दूरी 14 मिनट में ⇒ बची h/√3 के लिए **7 मिनट**।

Q24 **Ans (c)**

8 mins

45° → 60°: दूरी h से h/√3, यानी h(1 - 1/√3) 6 मिनट में।

बची h/√3 के लिए समय = 6/(√3 - 1) ≈ **8 मिनट**।

Q25 **Ans (a)**

$20\sqrt{3}$ **m**

h cot 60° + h cot 30° = h(1/√3 + √3) = 4h/√3 = 80 ⇒ **h = 20√3 m**।

Mock Set 02 Q26–Q46 · 14 Oct → 28 Oct

TOPIC · Height and Distance (2/2)

Q26 A tower is 120 m high. The angles of depression of two points on the same straight line and on the same side of the tower are 30° and 60°. Find the distance between the two points.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) $80\sqrt{3}$ m (b) $70\sqrt{3}$ m (c) $100\sqrt{3}$ m (d) $120\sqrt{3}$ m

Q27 From a point exactly midway between two towers A and B, the angles of elevation of their tops are 45° and 60° respectively. Find the ratio of the height of A to that of B.

SSC CGL 2026 · 14 Oct 2026 · Shift-2

(a) $\sqrt{3}:1$ (b) $2:\sqrt{3}$ (c) $\sqrt{3}:2$ (d) $1:\sqrt{3}$

Q28 Two observers on the same side of a tower see its top at angles 30° and 45°. The height of the tower is 90 m. Find the approximate distance between them. Take $(\sqrt{3}=1.732)$

SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 73 m (b) 66 m (c) 60 m (d) 71 m

Q29 From the top of a building 50 m high, the angles of depression of the top and bottom of a tower are 45° and 60° respectively. Find the approximate height of the tower.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 16 m (b) 31 m (c) 21 m (d) 29 m

Q30 From the top of a 75 m high lighthouse, the angles of depression of two ships approaching it along the same straight line are 30° and 45°. Find the approximate distance between the two ships.(Use √3=1.732)

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 50 m (b) 61 m (c) 59 m (d) 55 m

Q31 A tower of height 210 m observes two points on the same line at angles of depression 30° and 60°. Find the approximate distance between the points.(Use √3=1.732)

SSC CGL 2026 · 16 Oct 2026 · Shift-2

(a) 248 m (b) 252 m (c) 242 m (d) 239 m

Q32 The angle of elevation of the top of a tower from a point on the ground is 30°. If the height of the tower is 50m. Determine the distance from the point to the base of the tower.

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) $25\sqrt{3}$ m (b) $50\sqrt{3}$ m (c) $\frac{50}{\sqrt{3}}$ m (d) 100 m

Q33 Points P and Q are on the same side of a tower. The angles of elevation are 30° and 45°. The distance between them is 56 m. Find the height of the tower. Use(√3 = 1.732)

SSC CGL 2026 · 22 Oct 2026 · Shift-1

(a) 70.5 m (b) 70.2 m (c) 79.2 m (d) 76.5 m

Q34 A building is 150 m high. The angles of depression of two points on the same line are 45° and 60°. Find the approximate distance between them. Use(√3=1.732)

SSC CGL 2026 · 22 Oct 2026 · Shift-3

(a) 69 m (b) 56 m (c) 63 m (d) 72 m

Q35 A balloon rises vertically. From a point 50 m away, the angle of elevation changes from 30° to 60° in 10 seconds. Find the approximate height gained and vertical speed.

SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 49.75 m, 7.78 m/s (b) 47.75 m, 5.78 m/s (c) 57.75 m, 5.78 m/s (d) 50.75 m, 6.78 m/s

Q36 A tower is 90 m high. The angles of depression of two ships are 30° and 45°. Find the approximate distance between the ships. Use(√3=1.732)

SSC CGL 2026 · 23 Oct 2026 · Shift-2

(a) 60 m (b) 56 m (c) 66 m (d) 62 m

Q37 From the top of a lighthouse of height 100 m, the angle of depression of a ship is 45°. How far is the ship from the lighthouse base?

SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 100 m (b) 200 m (c) 150 m (d) 250 m

Q38 A lighthouse is 180 m high. The angles of depression of two points are 45° and 60°. Find the approximate distance between the two points. (Use √3 = 1.732)

SSC CGL 2026 · 24 Oct 2026 · Shift-1

(a) 67 m (b) 81 m (c) 76 m (d) 70 m

Q39 For a vertical tower of height h standing on horizontal ground, the angle of elevation from a point on the ground at a horizontal distance d from its base is θ. If the height of the tower is increased by 20% and then further increased by 25%, while the distance of the observer is first decreased by 20% and then increased by 25%, then the new angle of elevation θ' satisfies:

SSC CGL 2026 · 24 Oct 2026 · Shift-2

(a) $\tan\theta' = \left(\frac{15}{8}\right)\tan\theta$ (b) $\tan\theta' = \left(\frac{3}{2}\right)\tan\theta$
(c) $\tan\theta' = \left(\frac{5}{4}\right)\tan\theta$ (d) $\tan\theta' = \tan\theta$

Q40 From a point exactly midway between two towers P and Q, the angles of elevation of their tops are 30° and 45° respectively. Find the ratio of the height of P to that of Q.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) √3 : 1 (b) √3 : 2 (c) 1 : √3 (d) 2 : √3

Q41 Points A and B lie on the same straight horizontal line, on the same side of a vertical hill. The angle of elevation of the top of the hill from A is 30°, and from B is 45°. The distance between A and B is 20 m, with B closer to the hill. Find the height of the hill.

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) $20(\sqrt{3}-1)$ m m (b) $20(\sqrt{3}+1)$ m m
(c) $20\sqrt{3}$ (d) $10(1+\sqrt{3})$

Q42 From a point on level ground, the angle of elevation of the top of Tower A is greater than that of Tower B. If Tower A is known to be farther from the observer than Tower B, then which statement must be true?

SSC CGL 2026 · 27 Oct 2026 · Shift-1

(a) Tower A is taller than Tower B.
(b) Tower B is taller than Tower A.
(c) Both towers have equal heights.
(d) No conclusion can be drawn without knowing exact distances.

Q43 The ratio between the height of the tower and the point at some distance is 5√3 : 5. What will be the angle of elevation?

SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 40° (b) 60° (c) 15° (d) 90°

Q44 A vertical building stands on horizontal ground. From a point A, the angle of elevation of the top of the building is 30°. After walking 50 m towards the building to a point B, the angle of elevation becomes 45°. From point B, the angle of elevation of the top of a vertical antenna fixed on top of the building is 60°.

Find the height of the antenna.

SSC CGL 2026 · 28 Oct 2026 · Shift-2

(a) 25 m (b) 50 m
(c) $50\sqrt{2}$ m (d) $25(\sqrt{3}+1)$ m

Q45 From a point exactly midway between two towers X and Y, the angles of elevation of their tops are 60° and 45° respectively. Find the ratio of the height of X to that of Y.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $\sqrt{3}:1$ (b) $\sqrt{3}:2$ (c) $2:\sqrt{3}$ (d) $1:\sqrt{3}$

Q46 A drone is flying at a constant height. At a certain instant, it is attached to a point O on the ground by a taut cable of length 50 m, and the angle of elevation of the drone from point O is 30°. The drone then moves horizontally towards point O until the angle of elevation becomes 60°. Find the total horizontal distance traveled by the drone.

SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $100\sqrt{3}$ m (b) $50\frac{\sqrt{3}}{3}$ m
(c) $25\sqrt{3}$ m (d) $50(\sqrt{3}-1)$ m

ANSWER KEY · Mock Set 02

26 (a)	27 (d)	28 (b)	29 (c)	30 (d)
31 (c)	32 (b)	33 (d)	34 (c)	35 (c)
36 (c)	37 (a)	38 (c)	39 (b)	40 (c)
41 (d)	42 (a)	43 (b)	44 (b)	45 (a)
46 (b)				

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 Ans (a)

$80\sqrt{3}$ m

120 cot 30° - 120 cot 60° = 120(√3 - 1/√3) = 240/√3 = **80√3 m**।

Q27 Ans (d)

$1:\sqrt{3}$

बीच की दूरी d ⇒ h_A = d tan 45° = d, h_B = d√3 ⇒ **1 : √3**।

Q28 **Ans (b)**

66 m

90(√3 − 1) ≈ 90 × 0.732 ≈ **66 m**।

Q29 **Ans (c)**

21 m

60° ⇒ दूरी = 50/√3 ≈ 28.87 m; 45° ⇒ ऊँचाई का अंतर = 28.87 m।
Tower ≈ 50 − 28.87 ≈ **21 m**।

Q30 **Ans (d)**

55 m

75(√3 − 1) ≈ 75 × 0.732 ≈ **55 m**।

Q31 **Ans (c)**

242 m

210(√3 − 1/√3) = 420/√3 ≈ **242 m**।

Q32 **Ans (b)**

$50\sqrt{3}$ m

दूरी = 50 cot 30° = **50√3 m**।

Q33 **Ans (d)**

76.5 m

h(√3 − 1) = 56 ⇒ h = 56/0.732 ≈ **76.5 m**।

Q34 **Ans (c)**

63 m

150(1 − 1/√3) ≈ 150 × 0.4226 ≈ **63 m**।

Q35 **Ans (c)**

57.75 m, 5.78 m/s

ऊँचाई: 50 tan 30° = 28.87 → 50 tan 60° = 86.6 ⇒ बढ़ी ≈ 57.75 m;
गति = 57.75/10 ≈ 5.78 m/s ⇒ **57.75 m, 5.78 m/s**।

Q36 **Ans (c)**

66 m

90(√3 − 1) ≈ **66 m**।

Q37 **Ans (a)**

100 m

tan 45° = 1 ⇒ दूरी = **100 m**।

Q38 **Ans (c)**

76 m

180(1 − 1/√3) ≈ 180 × 0.4226 ≈ **76 m**।

Q39 **Ans (b)**

$\tan\theta' = \left(\frac{3}{2}\right)\tan\theta$

नई ऊँचाई = h × 1.2 × 1.25 = 1.5h; नई दूरी = d × 0.8 × 1.25 = d।
tan θ′ = 1.5h/d ⇒ **tan θ′ = (3/2) tan θ**।

Q40 **Ans (c)**

1 : √3

h_P = d tan 30° = d/√3, h_Q = d ⇒ **1 : √3**।

Q41 **Ans (d)**

$10(1+\sqrt{3})$

h cot 30° − h cot 45° = 20 ⇒ h(√3 − 1) = 20 ⇒ h = 20/(√3 − 1)
= **10(1 + √3) m**।

Q42 **Ans (a)**

Tower A is taller than Tower B.

A का कोण बड़ा और A दूर भी ⇒ h_A = d_A tan α_A > d_B tan α_B = h_B ⇒ **Tower A ऊँचा है**।

Q43 **Ans (b)**

60°

tan θ = 5√3/5 = √3 ⇒ **θ = 60°**।

Q44 **Ans (b)**

50 m

इमारत h: h√3 − h = 50 ⇒ h = 25(√3 + 1); B से दूरी = h।
B से 60° ⇒ इमारत + antenna = h√3 ⇒ antenna = h(√3 − 1) = 25 × 2 = **50 m**।

Q45 **Ans (a)**

$\sqrt{3} : 1$

h_X = d√3, h_Y = d ⇒ **√3 : 1**।

Q46 **Ans (b)**

$50\frac{\sqrt{3}}{3}$ **m**

ऊँचाई = 50 sin 30° = 25 m; शुरुआती क्षैतिज दूरी = 25√3, बाद में = 25/√3।
तय दूरी = 25√3 − 25/√3 = 50/√3 = **50√3/3 m**।

CHAPTER 22

Data Interpretation

Pie Chart · Bar Graph · Line Graph · Table

58	1	2	3
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Data Interpretation

01 Pie chart
1% = 3.6°; किसी भी sector का मान = कुल × %/100।

02 Ratio / %
पहले केवल ज़रूरी categories जोड़ें — पूरा data हल न करें।

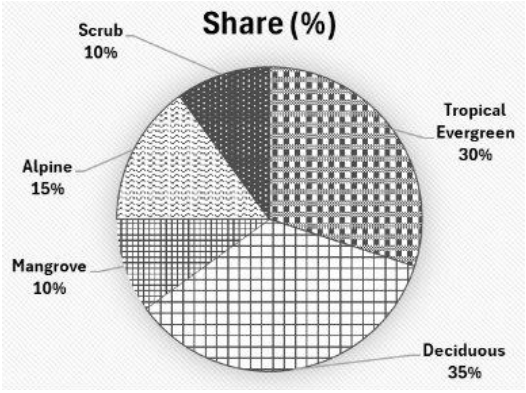
03 Bar graph
Scale ध्यान से पढ़ें (thousands/millions); औसत = योग/संख्या।

Mock Set 01 Q1–Q25 · 30 Sep → 12 Oct

TOPIC · Data Interpretation (DI) (1/2)

Q1 **The following pie-chart presents the percentage distribution of different forest types within a specific geographical area. Analyze the data provided and answer the following question based on the chart.**

What is the total combined central angle (in degrees) formed at the center for the Tropical Evergreen and Alpine sectors?

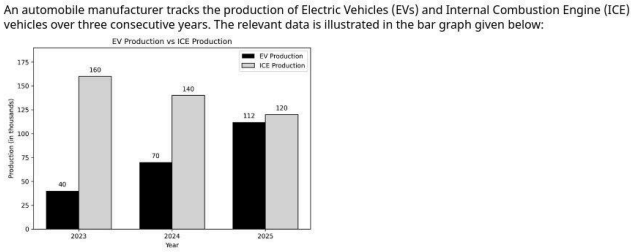


SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 162° (b) 174° (c) 150° (d) 148°

Q2 **An automobile manufacturer tracks the production of Electric Vehicles (EVs) and Internal Combustion Engine (ICE) vehicles over three consecutive years. The relevant data is illustrated in the bar graph given below:**

In which year did the production of EVs make up more than 35% of the total vehicle production (EV + ICE vehicles), and what is the percentage value rounded to two decimal places?

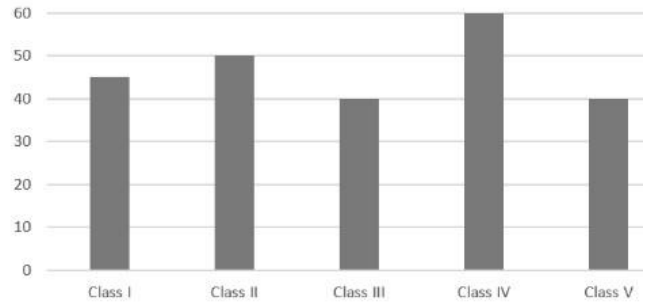


SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 2024, 33.33% (b) 2025, 46.32%
(c) 2025, 48.28% (d) 2023, 36.25%

Q3 **Using the provided bar graph, which shows the number of students in each class, answer the following questions.**

If Class IV is split into two sections with an equal number of students, and Class III merges with one of these sections, what percentage of the total students would be in that merged section?

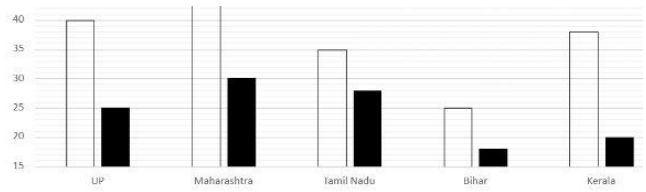


SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 30% (b) 32% (c) 34% (d) 36%

Q4 **Examine the bar graph below, answer the following question.**

What is the total number of internet users across all five states, and what approximate percentage of them are urban users?

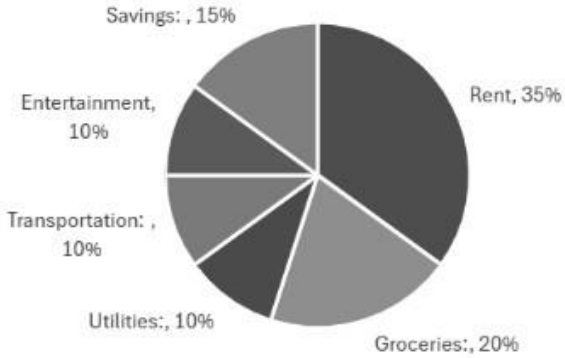


SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 309 million total; 61% urban
(b) 309 million total; 59% urban
(c) 314 million total; 60% urban
(d) 307 million total; 63% urban

Q5 **Carefully study the pie chart showing the distribution of favorite colors. Then answer the following questions.**

Which three categories combined account for the same percentage as Rent?

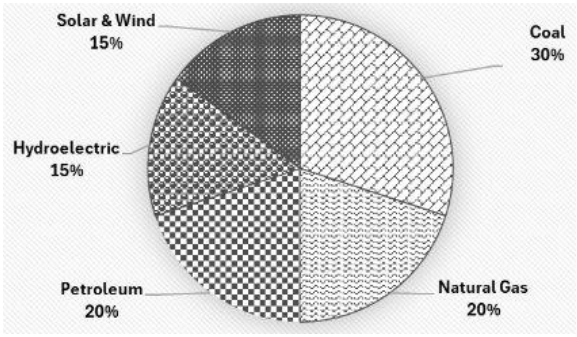


SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) Utilities, Transportation, Entertainment
(b) Groceries, Entertainment, Savings
(c) Transportation, Entertainment, Savings
(d) Rent, Transportation, Savings

Q6 **The following pie-chart shows the percentage distribution of energy consumption from various sources. Study the pie- chart carefully and answer the question based on it.**

The total energy consumed is 10,000 units. The contribution from 'Coal' is reduced by one-fifth of its current amount. To keep the total energy consumption unchanged, the usage of 'Natural Gas' must be increased. Determine the percentage by which 'Natural Gas' consumption should be raised to compensate for the reduction in 'Coal'.

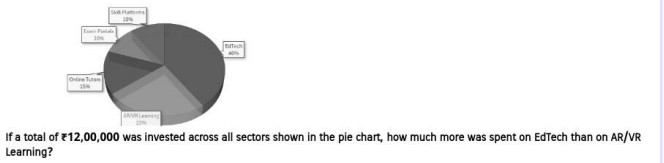


SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 45% (b) 40% (c) 30% (d) 35%

Q7 **Using the information in the pie chart, answer the following question.**

If a total of Rs12,00,000 was invested across all sectors shown in the pie chart, how much more was spent on EdTech than on AR/VR Learning?



SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) Rs1,20,000 (b) Rs1,50,000 (c) Rs1,80,000 (d) Rs2,00,000

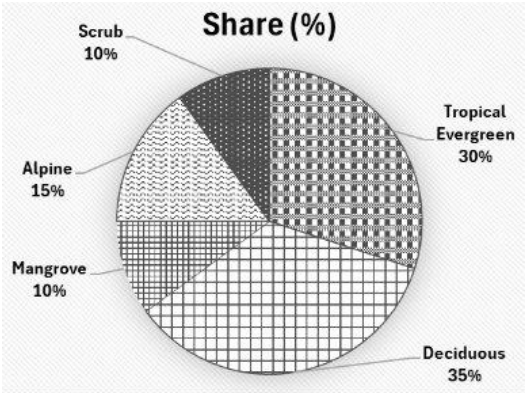
Q8 **When comparing unemployment rates across five states using a bar diagram, what is important to maintain for accuracy?**

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) Different scales for clarity
(b) Varying bar widths
(c) Same scale on the y-axis and equal bar width
(d) Use different bar colours only

Q9 **The following pie-chart represents the percentage-wise share of different forest types within a specified region. Analyze the data distribution provided in the chart and answer the question that follows.**

Let us assume that the 'Combined High Growth Zone' is made up of 'Tropical Evergreen' and 'Deciduous' forests, while the 'Sparse Zone' is made up of 'Scrub' and 'Mangrove' forests. By how many percentage points is the 'High Growth Zone' greater than the 'Sparse Zone'?

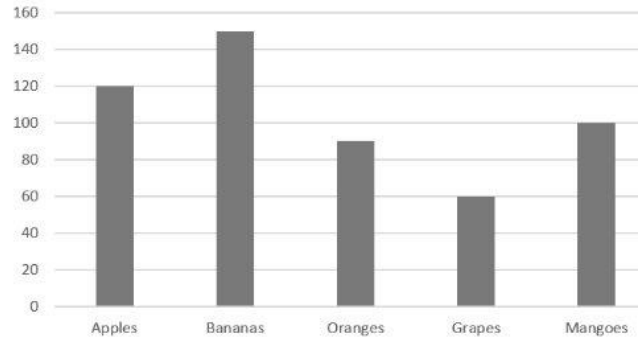


SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 35 (b) 40 (c) 45 (d) 50

Q10 **Using the provided bar graph, which shows the quantity of fruit sold in kilograms, answer the following questions.**

If Apples and Bananas were excluded from the data, what percentage of the remaining total sales does Mangoes account for? (Round to the nearest whole number)

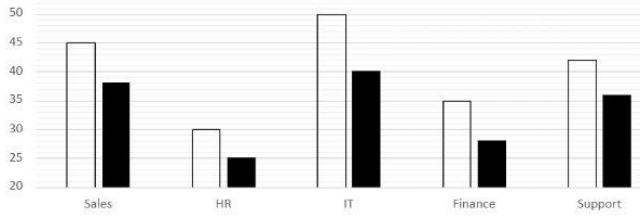


SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 33% (b) 38% (c) 40% (d) 45%

Q11 **Examine the bar graph below to answer the following question.**

If each morning shift employee earns Rs500 per day and each evening shift employee earns Rs550 per day, which department incurs the highest total daily wage cost?

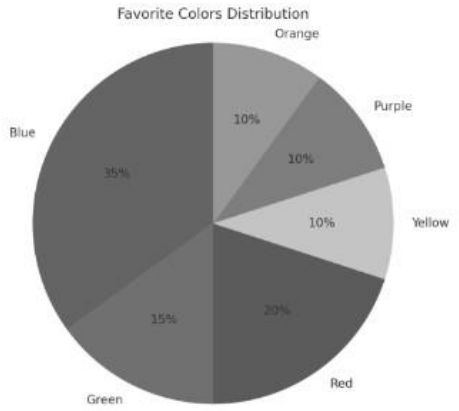


SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) IT (b) Sales (c) Support (d) Finance

Q12 **Carefully study the pie chart showing the distribution of favorite colors. Then answer the following questions.**

Based on the pie chart showing the favorite colors of a group of people, which of the following two colors together account for the same percentage as Blue?

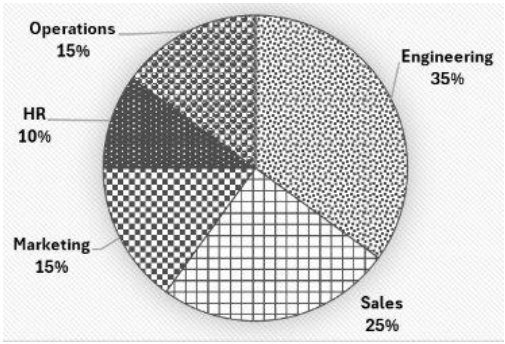


SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) Green and Red
(b) Purple and Yellow
(c) Green and Orange
(d) Red and Orange

Q13 **The pie chart shows the percentage distribution of corporate staff members across different functional departments in an organization. Study the following pie chart carefully and answer the question that follows.**

The total number of people employed by the firm is 4800. The ratio of men to women employed by the Engineering department is 4:3, while that of men to women employed by the Sales department is 3:2. Given that 60% of the total employees employed by the Operations department are men, determine the number of women employed by all three departments.



SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 1340
(b) 1488
(c) 1290
(d) 1580

Q14 **A bar diagram shows the number of tourists visiting 5 tourist spots during 4 months. How many bars will the diagram contain?**

SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 15
(b) 20
(c) 9
(d) 10

Q15 **A publishing house analyzed how 720 editorial work-hours in a week were distributed across five departments involved in book production. The data was visualized in the form of a pie chart.**

If the company merges Proofreading and Fact-checking into one department, what is their total fraction of the chart and angle?

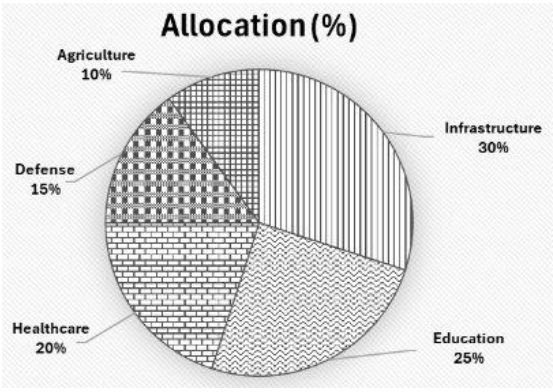


SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 3/10 and 108°
(b) 5/12 and 115°
(c) 2/5 and 120°
(d) 3/8 and 135°

Q16 **The following pie-chart represents the percentage-wise budget allocation across five key sectors. Analyse the distribution provided in the chart and answer the question that follow.**

The 'Education' sector corresponds to 25% of the total and forms an angle of 90°. If the combined contribution of Defense and Agriculture forms a sector equal in size to the Education sector, what is the ratio between the central angle of the Education sector and the combined central angle of Defense and Agriculture?

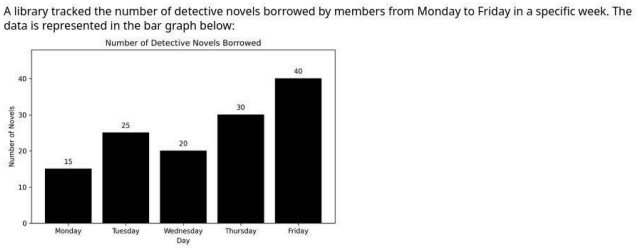


SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 1:1
(b) 2:1
(c) 2:5
(d) 5:3

Q17 **A library tracked the number of detective novels borrowed by members from Monday to Friday in a specific week. The data is represented in the bar graph below:**

Thursday's and Friday's borrowings combined constitute what percentage of the total week's borrowings?

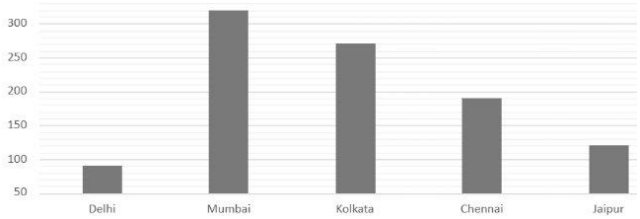


SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 53.85% (b) 52.60% (c) 51.75% (d) 50.90%

Q18 **Examine the bar graph below to answer the following question.**

If rainfall in Kolkata increases by 20% and rainfall in Jaipur decreases by 25%, what will be the simplified ratio of highest to lowest rainfall among all cities?

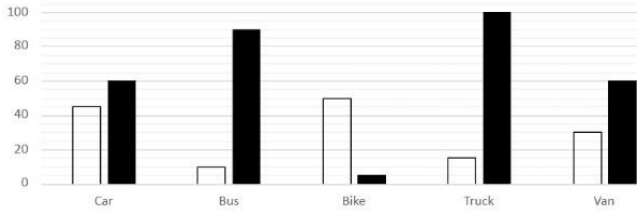


SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 18:5 (b) 17:4 (c) 16:5 (d) 15:4

Q19 **Examine the bar graph below to answer the following question.**

Which vehicle type has the highest diesel-to-petrol consumption ratio, and what is that ratio?

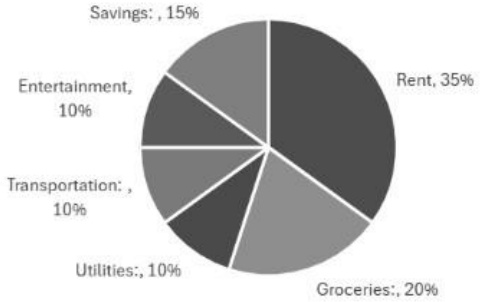


SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) Bus – 9:1 (b) Truck – 20:3
(c) Car – 4:3 (d) Van – 2:1

Q20 **Study the pie chart carefully. It shows how a household allocates its monthly budget across different categories. Then answer the following questions.**

If the total monthly income is $4,000, how much money is spent on Groceries?

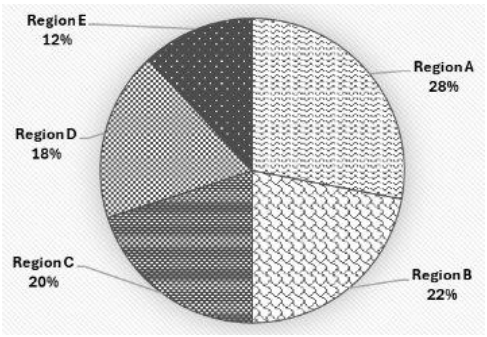


SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) $700 (b) $800 (c) $900 (d) $1,000

Q21 **The following pie-chart presents the percentage distribution of the population across five different regions. Study the pie-chart carefully and answer the question based on the provided data.**

If the population of all regions grows at an annual rate of 5%, except for Region D, which grows at 15% per annum, what will be the approximate percentage share of Region D in the total population after one year?

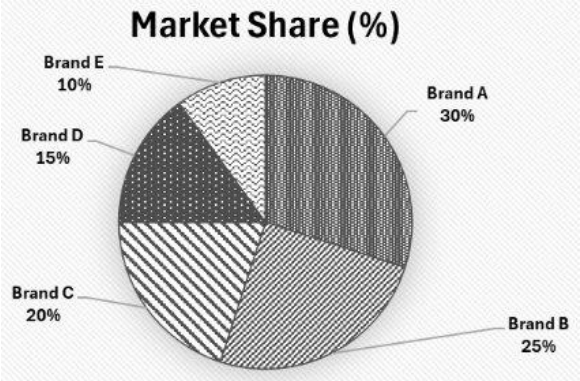


SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 18.5% (b) 19.4% (c) 22.8% (d) 24.6%

Q22 **The following pie-chart represents the percentage-wise market share held by five different brands. Study the pie-chart carefully and answer the question based on it.**

If the total annual revenue of the market is Rs50,00,000, what is the difference in revenue between Brand A and the combined revenue of Brand D and Brand E?

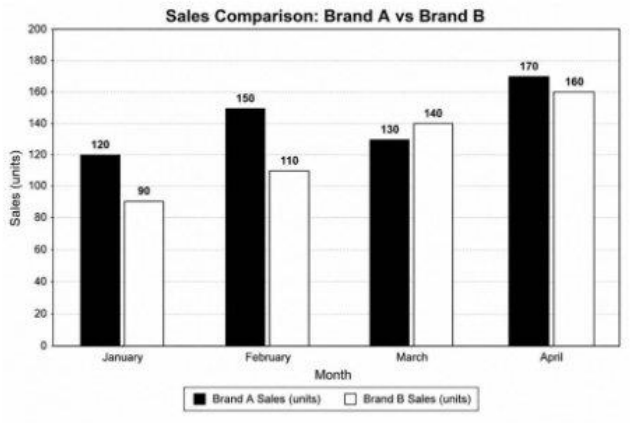


SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) Rs5,00,000 (b) Rs2,50,000 (c) Rs5,50,000 (d) Rs2,00,0

Q23 **An electronics store compared the sales of two brands of smartphones, Brand A and Brand B over the first four months of a calendar year. The observations are illustrated below in the given bar graph:**

What is the average monthly sales volume for Brand B across the four months?

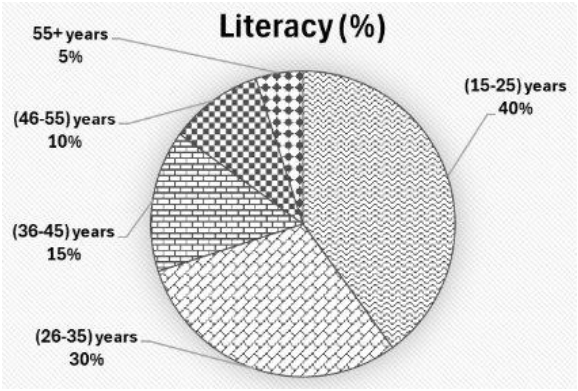


SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 120 units (b) 125 units (c) 130 units (d) 135 units

Q24 **The pie chart shows the percentage distribution of literate individuals across different age groups in a survey sample. Study the pie chart carefully and answer the question given below it.**

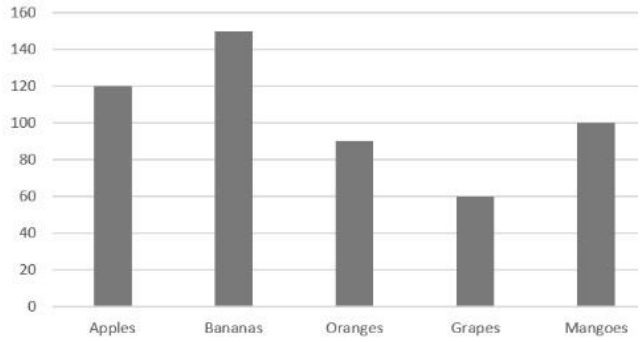
What is the ratio of the combined literacy share of the youngest and oldest age groups (15-25 years and 55+ years) to the combined literacy share of the remaining middle age groups (26-35, 36-45, and 46-55 years)?



SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 11:13 (b) 8:11 (c) 9:11 (d) 13:17

Q25 **Using the provided bar graph, which shows the quantity of fruit sold in kilograms, answer the following questions. If the fruits are ranked based on descending order of quantity sold, what is the ratio of the combined sales of the top two fruits to the bottom two?**



SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 9:5 (b) 11:5 (c) 7:3 (d) 5:2

ANSWER KEY · Mock Set 01				
1 (a)	2 (c)	3 (a)	4 (a)	5 (c)
6 (c)	7 (c)	8 (c)	9 (c)	10 (c)
11 (a)	12 (a)	13 (b)	14 (b)	15 (a)
16 (a)	17 (a)	18 (a)	19 (a)	20 (b)
21 (b)	22 (b)	23 (b)	24 (c)	25 (a)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 **Ans (a)**

162°

Tropical Evergreen + Alpine = 30% + 15% = 45% ⇒ कोण = 45 × 3.6 = **162°**।

Q2 **Ans (c)**

2025, 48.28%

EV का हिस्सा: 2023 = 40/200 = 20%; 2024 = 70/210 = 33.33%; 2025 = 112/232 = 48.28%।
केवल 2025 में 35% से अधिक ⇒ **2025, 48.28%**।

Q3 **Ans (a)**

30%

कुल = 45 + 50 + 40 + 60 + 40 = 235। Class IV का आधा = 30; merged = 30 + 40 = 70।
70/235 × 100 ≈ **30%**।

Q4 **Ans (a)**

309 million total; 61% urban

Urban = 40 + 50 + 35 + 25 + 38 = 188; Rural = 25 + 30 + 28 + 18 + 20 = 121 ⇒ कुल 309 million।
Urban % = 188/309 ≈ 61% ⇒ **309 million; 61% urban**।

Q5 **Ans (c)**

Transportation, Entertainment, Savings

Rent = 35% = Transportation 10% + Entertainment 10% + Savings 15% ⇒ विकल्प **(c)**।

Q6 **Ans (c)**

30%

Coal = 30% of 10,000 = 3000; 1/5 कमी = 600। Natural Gas = 2000 ⇒ 600 बढ़ाना = **30%**।

Q7 **Ans (c)**

Rs1,80,000

EdTech 40% - AR/VR 25% = 15% of 12,00,000 = **Rs 1,80,000**।

Q8 **Ans (c)**

Same scale on the y-axis and equal bar width

तुलना सही हो, इसके लिए सभी bars का **y-axis scale एक जैसा और चौड़ाई बराबर** होनी चाहिए।

Q9 **Ans (c)**

45

High Growth = 30 + 35 = 65%; Sparse = 10 + 10 = 20% ⇒ अंतर **45 percentage points**।

Q10 **Ans (c)**

40%

शेष: Oranges 90 + Grapes 60 + Mangoes 100 = 250 ⇒ Mangoes = 100/250 = **40%**।

Q11 **Ans (a)**

IT

IT = 50 × 500 + 40 × 550 = 47,000; Sales = 45 × 500 + 38 × 550 = 43,400; Support = 42 × 500 + 36 × 550 = 40,800।
सबसे अधिक **IT**।

Q12 **Ans (a)**

Green and Red

Blue = 35% = Green 15% + Red 20% ⇒ **Green and Red**।

Q13 **Ans (b)**

1488

Engineering = 35% of 4800 = 1680 ⇒ महिलाएँ 3/7 = 720; Sales = 1200 ⇒ महिलाएँ 2/5 = 480; Operations = 720 ⇒ महिलाएँ 40% = 288।
कुल महिलाएँ = 720 + 480 + 288 = **1488**।

Q14 **Ans (b)**

20

5 स्थान × 4 महीने = **20 bars**।

Q15 **Ans (a)**

3/10 and 108°

Proofreading 18% + Fact-checking 12% = 30% = **3/10**, कोण = 0.3 × 360 = **108°**।

Q16 **Ans (a)**

1:1

Defense 15% + Agriculture 10% = 25% = Education ⇒ कोण बराबर ⇒ **1 : 1**।

Q17 **Ans (a)**

53.85%

कुल = 15 + 25 + 20 + 30 + 40 = 130; गुरु + शुक्र = 70 ⇒ 70/130 ≈ **53.85%**।

Q18 **Ans (a)**

18:5

Kolkata = 270 × 1.2 = 324; Jaipur = 120 × 0.75 = 90। सबसे अधिक 324 (Kolkata), सबसे कम 90 (Jaipur/Delhi)।
324 : 90 = **18 : 5**।

Q19 **Ans (a)**

Bus – 9:1

Bus: diesel 90, petrol 10 ⇒ 9 : 1 (बाकी: Car 4 : 3, Truck 20 : 3, Van 2 : 1) ⇒ **Bus – 9 : 1**।

Q20 **Ans (b)**

$800

Groceries = 20% of 4000 = **$800**।

Q21 **Ans (b)**

19.4%

बाकी क्षेत्र (82%) × 1.05 = 86.1; D = 18 × 1.15 = 20.7 ⇒ कुल 106.8।
D का हिस्सा = 20.7/106.8 ≈ **19.4%**।

Q22 **Ans (b)**

Rs2,50,000

A = 30%; D + E = 15% + 10% = 25% ⇒ अंतर 5% of 50,00,000 = **Rs 2,50,000**।

Q23 **Ans (b)**

125 units

Brand B = (90 + 110 + 140 + 160)/4 = 500/4 = **125 units**।

Q24 **Ans (c)**

9:11

(40 + 5) : (30 + 15 + 10) = 45 : 55 = **9 : 11**।

Q25 **Ans (a)**

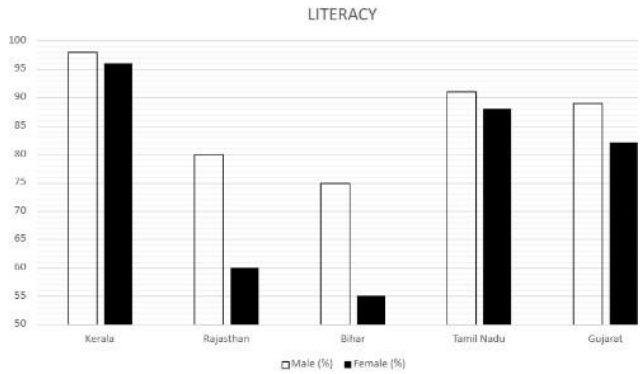
9:5

शीर्ष दो: Bananas 150 + Apples 120 = 270; अंतिम दो: Oranges 90 + Grapes 60 = 150 ⇒ 270 : 150 = **9 : 5**।

Mock Set 02 Q26–Q58 · 12 Oct → 28 Oct

TOPIC · Data Interpretation (DI) (2/2)

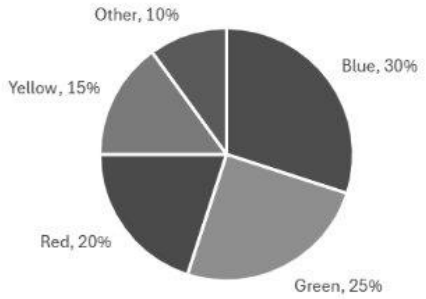
Q26 **Examine the bar graph below to, answer the following question. What is the average female literacy rate across the five listed states?**



SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 76.2% (b) 75.8% (c) 77.4% (d) 78.0%

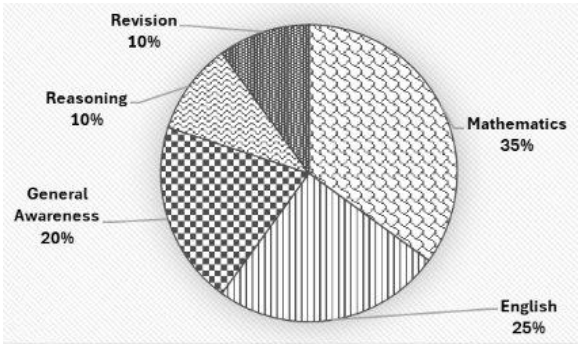
Q27 **Carefully study the pie chart showing the distribution of favorite colors. Then answer the following questions. Assume the total number of respondents shown in the chart is 1,000. If 10% of people who preferred Red switch to Yellow, and 20% of people who preferred Other switch to Blue, what will be the new percentage of people who prefer Blue?**



SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 32% (b) 34% (c) 36% (d) 38%

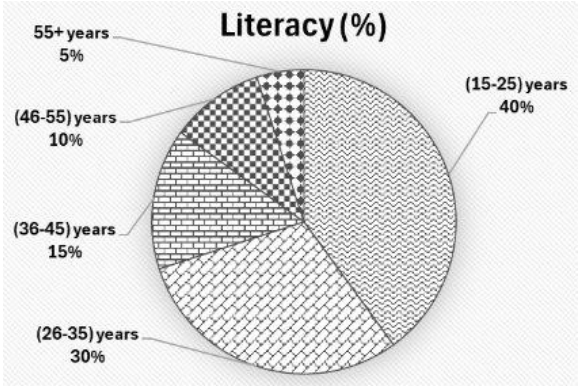
Q28 The following pie-chart illustrates the percentage distribution of study time allocated to various subjects and activities. Study the pie-chart thoroughly and solve the questions based on the conditions provided. Suppose a student's total study time is 40 hours per week. The student decides to increase the efficiency of 'Mathematics' by 20% (meaning they achieve the same learning output in 20% less time) and reallocates the "saved" time equally between 'Reasoning' and 'Revision'. What is the new absolute time (in minutes) spent on 'Reasoning'?



SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 324 minutes (b) 244 minutes (c) 240 minutes (d) 304 minutes

Q29 The pie chart shows the percentage distribution of literate individuals across different age groups in a survey sample. Study the pie chart carefully and answer the question given below it. What is the difference between the central angles (in degrees) formed at the center of the pie chart by the (26-35) years age group and the (36-45) years age group?

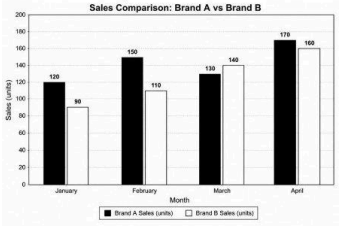


SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 62° (b) 54° (c) 48° (d) 37°

Q30 An electronics store compared the sales of two brands of smartphones, Brand A and Brand B over the first four months of a calendar year. The observations are illustrated below in the given bar graph: What is the total difference in sales between the two brands across the four months? Month-wise, in which month is the sales difference between the two brands the highest? (Answer respectively).

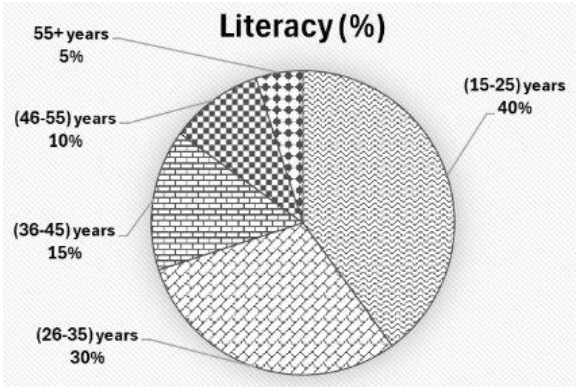
An electronics store compared the sales of two brands of smartphones, Brand A and Brand B over the first four months of a calendar year. The observations are illustrated below in the given bar graph:



SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 70 units; January (b) 60 units; January
(c) 60 units; February (d) 70 units; February

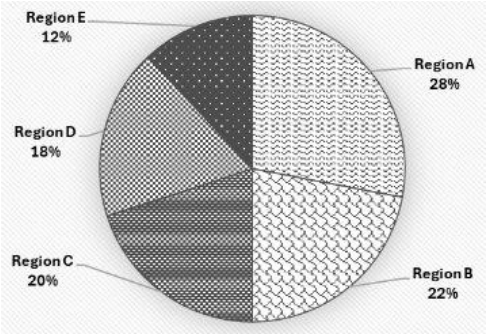
Q31 The pie chart shows the percentage distribution of literate individuals across different age groups in a survey sample. Study the following pie chart carefully and answer the question given below it. If the total literate population represented in the pie chart is 120,000, what is the average number of literate individuals per age group across the three oldest categories (36–45 years, 46– 55 years, and 55+ years)?



SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 13,000 (b) 16,000 (c) 12,000 (d) 14,000

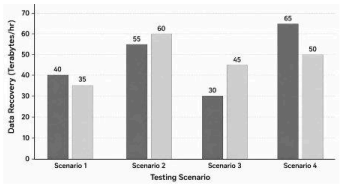
Q32 The following pie-chart presents the percentage distribution of the population across five different regions. Study the pie-chart carefully and answer the question based on the provided data. If the population of Region A is 70,000, what is the population of Region E?



SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 25,000 (b) 30,000 (c) 35,000 (d) 40,000

Q33 A regional network operator measures the data recovery success speed of two distinct server nodes (Node A and Node B) across four testing scenarios. The findings are given in the following bar-graph: Find the absolute numerical difference between the maximum recovery speed recorded by Node A and the minimum recovery speed recorded by Node B, and also that between the minimum recovery speed recorded by Node A and the maximum recovery speed recorded by Node B, respectively.

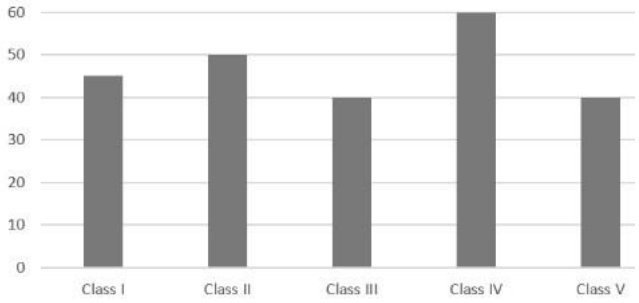


Find the absolute numerical difference between the maximum recovery speed recorded by Node A and the minimum recovery speed recorded by Node B, and also that between the minimum recovery speed recorded by Node A and the maximum recovery speed recorded by Node B, respectively.

SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 35 terabytes/hr, 25 terabytes/hr
(b) 25 terabytes/hr, 35 terabytes/hr
(c) 35 terabytes/hr, 30 terabytes/hr
(d) 30 terabytes/hr, 30 terabytes/hr

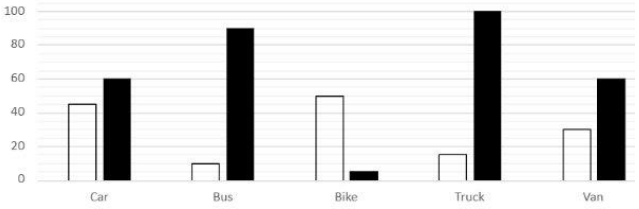
Q34 Using the provided bar graph, which shows the number of students in each class, answer the following questions. Suppose the average score of students in each class is as follows: Class I – 60, Class II – 70, Class III – 55, Class IV – 65, Class V – 75. What is the overall average score of all students combined?



SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 65.1 (b) 64.6 (c) 64.2 (d) 63.8

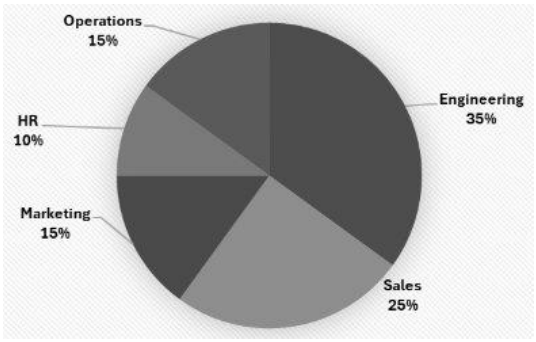
Q35 Examine the bar graph below to, answer the following question. What is the total fuel consumption (petrol + diesel) for all vehicle types combined, and which vehicle type contributes the least to it?



SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 465 L; Bus (b) 465 L; Bike (c) 470 L; Van (d) 475 L; Bike

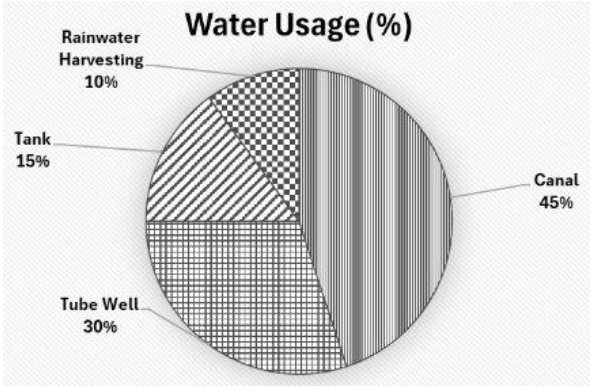
Q36 **Study the pie chart carefully that shows the percentage distribution of employees across different departments in an organization, namely Engineering, Sales, Marketing, HR, and Operations and answer the question that follows: If one employee is selected at random, what is the probability that the employee works in either HR or Operations?**



SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 0.50 (b) 0.18 (c) 0.25 (d) 0.36

Q37 **The pie chart shows the percentage distribution of different water sources used for irrigation in a region. Study the given pie chart carefully and answer the question that follows. If the total volume of water used from Canals is 14,000 litres more than the volume of water used from Tube Wells, calculate the approximate total combined volume of water used from Tanks and Rainwater Harvesting combined.**

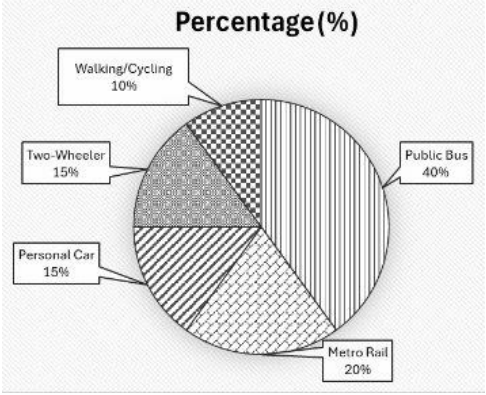


SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 31,300 litres (b) 36,220 litres
(c) 23,333 litres (d) 26,233 litres

Q38 **The pie-chart presented below illustrates the percentage- wise distribution of various transportation modes used. Analyse the chart carefully and answer the question that follows.**

Suppose the city intends to increase the share of 'Metro Rail' by 5% while decreasing the share of 'Public Bus' by 5%, keeping all other modes of transport unchanged. What will be the resulting ratio of 'Metro Rail' users to 'Walking/Cycling' users?

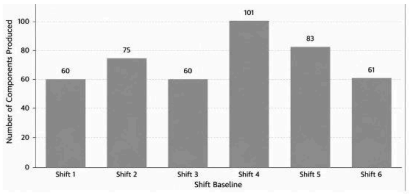


SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 2:1 (b) 5:2 (c) 4:1 (d) 3:2

Q39 **A heavy machinery manufacturing plant closely monitors its factory output volume of essential car components across six consecutive working shifts. The observations are illustrated in the bar graph below:**

The factory operates under a strict optimization baseline target requiring exactly 80 individual components to be produced during each shift. Shorter tallies introduce a deficit, while output above 80 introduces a surplus that can mitigate existing deficits. Find the net final component deficit remaining at the end of all six shifts, expressed as a percentage of the total baseline target for all six shifts combined, rounded to two decimal places.



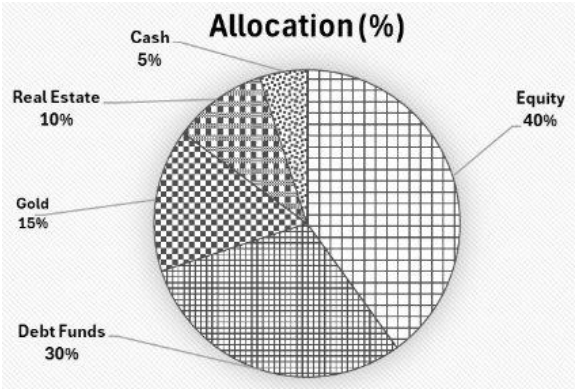
The factory operates under a strict optimization baseline target requiring exactly 80 individual components to be produced during each shift. Shorter tallies introduce a deficit, while output above 80 introduces a surplus that can mitigate existing deficits.
Find the net final component deficit remaining at the end of all six shifts, expressed as a percentage of the total baseline target for all six shifts combined, rounded to two decimal places.

SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) 7.66% (b) 8.33% (c) 9.09% (d) 12.50%

Q40 **The pie chart shows the percentage distribution of an investor's total financial portfolio across different asset classes. Study the given pie chart carefully and answer the question that follows.**

An investor decides that the combined valuation of their investment in Equity and Gold must be at least Rs2,20,000. What must be the minimum total value (in Rs) of the entire portfolio to satisfy this condition?

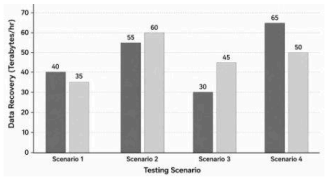


SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) Rs4,00,000 (b) Rs4,50,000 (c) Rs5,00,000 (d) Rs5,50,0

Q41 **A regional network operator measures the data recovery success speed of two distinct server nodes (Node A and Node B) across four testing scenarios. The findings are given in the following bar-graph:**

The operational baseline requires a server node to maintain a data recovery speed strictly greater than 45 Terabytes/hr. Find the total number of individual node-instances across all scenarios that failed to meet this baseline.



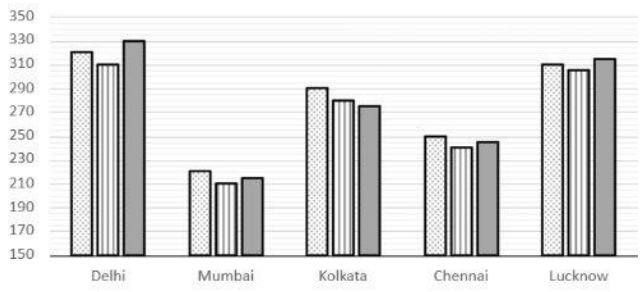
The operational baseline requires a server node to maintain a data recovery speed strictly greater than 45 Terabytes/hr. Find the total number of individual node-instances across all scenarios that failed to meet this baseline.

SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 6 (b) 5 (c) 4 (d) 3

Q42 **Examine the bar graph below to , answer the following question.**

Which city has the lowest average value across all three zones?

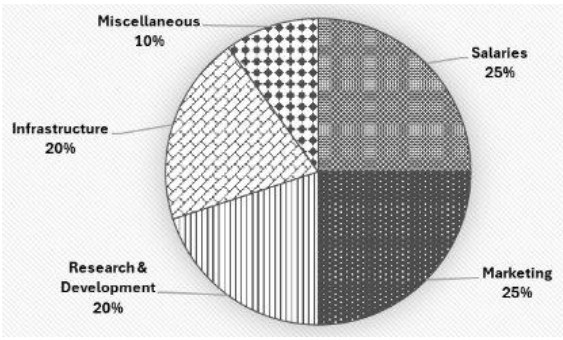


SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) Mumbai (b) Chennai (c) Kolkata (d) Lucknow

Q43 **The following pie-chart shows the percentage distribution of the annual budget allocation across various departments. Study the pie-chart carefully and answer the question based on it.**

If the company decides to double the budget for 'Research & Development' by reducing the budget for 'Miscellaneous' and 'Infrastructure' equally, what will be the new percentage share of 'Miscellaneous' in the budget?



SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 0% (b) 5% (c) 2.5% (d) 4.5%

Q44 **A village health centre recorded the number of patients attending over six days in a bar diagram: 120, 150, 130, 140, 110, and 160. Based on this data, what is the average number of patients per day?**

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 145 (b) 140 (c) 135 (d) 130

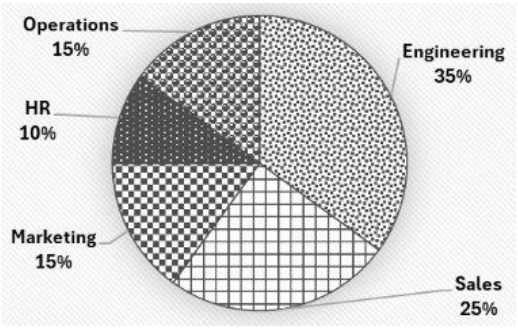
Q45 **A pie chart represents the sales of 4 different crops in a village. If the angle for wheat is 108°, what fraction of total sales does wheat represent?**

SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 3/10 (b) 3/8 (c) 3/7 (d) 3/5

Q46 **The pie chart shows the percentage distribution of corporate staff members across different functional departments in an organization. Study the following pie chart carefully and answer the question that follows.**

If the total number of employees in the HR department is 120, what is the difference between the combined number of employees in the Engineering and Sales departments and the combined number of employees in the Marketing and Operations departments?

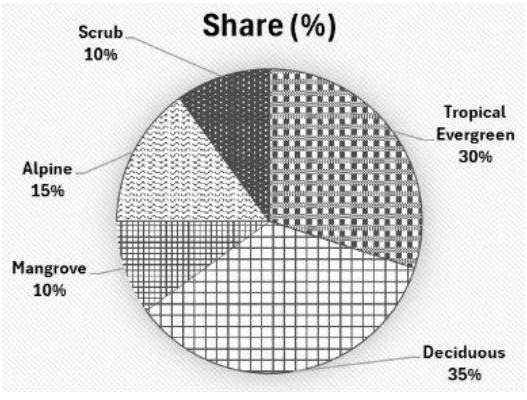


SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 240 (b) 360 (c) 480 (d) 560

Q47 **The following pie-chart presents the percentage distribution of different forest types within a specific geographical area. Analyse the data provided and answer the following question based on the chart.**

If the region plans to consolidate the 'Tropical Evergreen' sector, which is 30%, with the 'Scrub' sector, which is 10%, and designate all the 'Alpine' forests, which make up 15%, under the 'Deciduous' category, then what will be the percentage of the 'Deciduous' category?

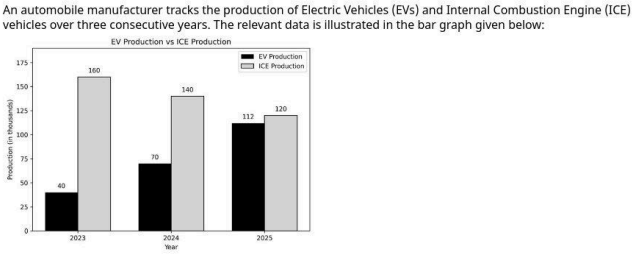


SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 35% (b) 40% (c) 45% (d) 50%

Q48 **An automobile manufacturer tracks the production of Electric Vehicles (EVs) and Internal Combustion Engine (ICE) vehicles over three consecutive years. The relevant data is illustrated in the bar graph given below:**

What is the percentage increase in EV production from the year 2023 to 2025, and what is the percentage decrease in ICE production from the year 2023 to 2024, respectively?

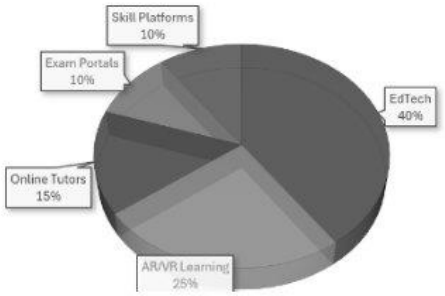


SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 180%, 25% (b) 75%, 25% (c) 75%, 12.5% (d) 180%, 12.5%

Q49 **Using the information in the pie chart, answer the following question.**

An investor initially allocated Rs12,00,000 based on the sector- wise percentages shown. In the next year, he decided to increase his investment in Online Tutors by 20% and decrease investment in AR/VR Learning by 10%, while keeping all other sector allocations the same. What is the new amount invested in Online Tutors?

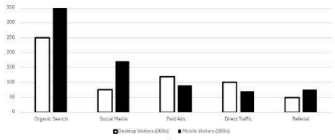


SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) Rs2,00,000 (b) Rs2,16,000 (c) Rs2,10,000 (d) Rs2,25,000

Q50 **The given bar graph illustrates Website Traffic Sources (Desktop vs. Mobile). Answer the following question based on this bar graph.**

The website's total visitors from all sources (desktop + mobile) is 1,230,000. Given the data in the bar graph, calculate the exact number of visitors from Organic Search (both desktop and mobile). If 5% of the Organic Search visitors bounce off the website immediately, how many visitors remain engaged? Round your answer to the nearest whole number.



The website's total visitors from all sources (desktop + mobile) is 1,230,000. Given the data in the bar graph, calculate the exact number of visitors from Organic Search (both desktop and mobile). If 5% of the Organic Search visitors bounce off the website immediately, how many visitors remain engaged? Round your answer to the nearest whole number.

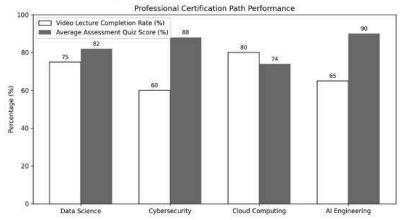
SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 558000 (b) 561000 (c) 570,000 (d) 579000

Q51 **The double bar graph shows the Video Lecture Completion Rate (%) and the Average Assignment Quiz Score (%) across four different professional certification paths.**

A platform calculates an Engagement Efficiency Score (EES) for each path using the formula: EES = (Video Lecture Completion Rate × Average Assignment Quiz Score) / 100. What is the absolute difference in the EES between the certification path with the highest score and the certification path with the lowest score?

The double bar graph shows the Video Lecture Completion Rate (%) and the Average Assignment Quiz Score (%) across four different professional certification paths.



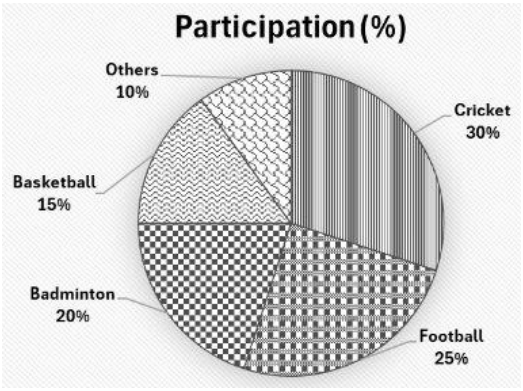
A platform calculates an Engagement Efficiency Score (EES) for each path using the formula:
EES = (Video Lecture Completion Rate × Average Assignment Quiz Score) / 100
What is the absolute difference in the EES between the certification path with the highest score and the certification path with the lowest score?

SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 2.30 (b) 3.00 (c) 6.40 (d) 8.70

Q52 **The pie chart displays the percentage distribution of students participating in five different sports categories at a school academy. Study the following pie chart carefully to answer the question that follows.**

Due to ground maintenance, the academy temporarily suspends the Basketball program. All students currently in the Basketball sector are transferred to other sports: 1. $\frac{2}{3}$ of the Basketball students are moved to Cricket. 2. The remaining Basketball students are moved to Badminton. After this structural shift is complete, what will be the new ratio of the total number of students in Cricket to the total number of students in Badminton?

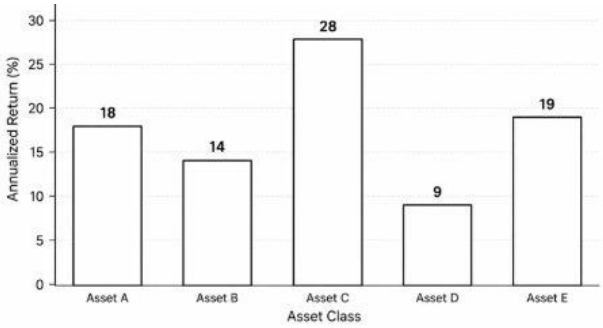


SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 7:8 (b) 8:5 (c) 4:9 (d) 9:7

Q53 **Nayana invests a total of Rs. 50,000 across five different assets, namely A, B, C, D, and E. She puts exactly 36% of the total investment amount into Asset A, and the remaining money is divided equally among the other four assets. The annualized return percentages of the different assets over a single year are illustrated in the bar graph below:**

Calculate the total amount of profit Nayana makes at the end of the year across her entire portfolio.

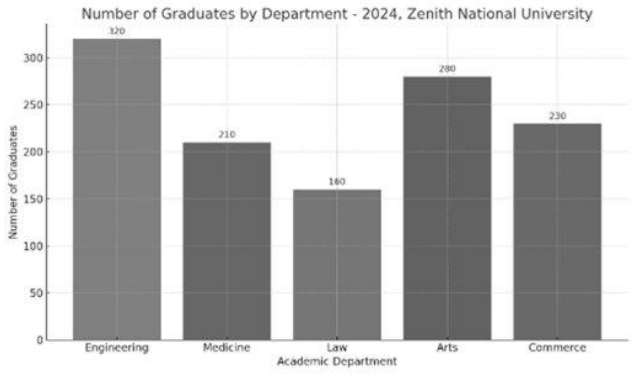


SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) Rs. 8400 (b) Rs. 8480 (c) Rs. 8800 (d) Rs. 8840

Q54 **At Zenith National University, the academic year 2023– 2024 concluded with a significant graduation ceremony across its five major departments: Engineering, Medicine, Law, Arts, and Commerce.**

If each graduate from Commerce contributes Rs5,000 to the alumni fund, and graduates from other departments contribute Rs4,000 each, what is the total fund collected?

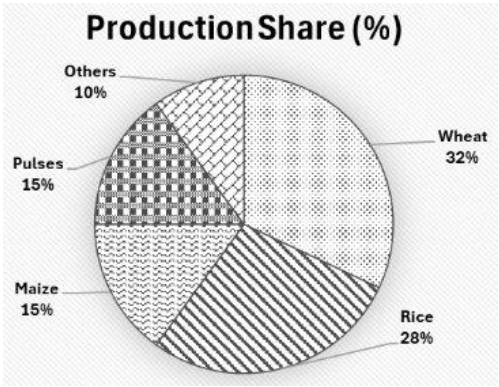


SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) Rs50,00,000 (b) Rs50,30,000 (c) Rs49,50,000 (d) Rs51,

Q55 **The following pie-chart presents the percentage distribution of the production share of five different crops. Study the pie-chart carefully and answer the question based on the provided data.**

A market analyst wants to re-cluster the chart into three primary economic sectors: 1. Sector I (Cereals): Wheat + Rice + Maize 2. Sector II (Proteins): Pulses 3. Sector III (Miscellaneous): Others Problem: What is the difference between the central angle of Sector I and the combined central angles of Sector II and Sector III?

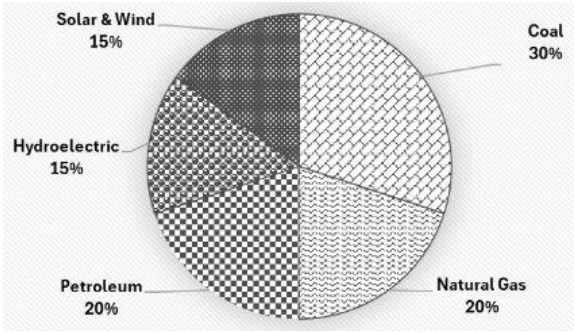


SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 90° (b) 180° (c) 120° (d) 45°

Q56 **The following pie-chart shows the percentage distribution of energy consumption from various sources. Study the pie- chart carefully and answer the question based on it.**

If the government mandates a transition where 50% of the 'Coal' consumption is replaced by 'Solar & Wind', what will be the new percentage share of 'Solar & Wind' in the total energy mix?

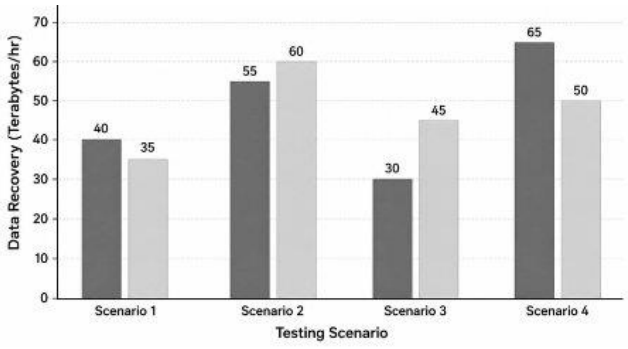


SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 25% (b) 35% (c) 20% (d) 30%

Q57 **A regional network operator measures the data recovery success speed of two distinct server nodes (Node A and Node B) across four testing scenarios. The findings are given in the following bar-graph:**

In how many scenarios did Node A outperform Node B by a margin equivalent to more than 15% of Node B's performance in that specific scenario?

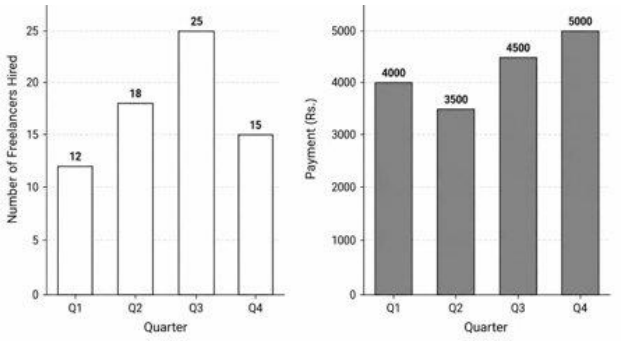


SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 0 (b) 1 (c) 2 (d) 3

Q58 **A startup company hires freelancers for different assignments on a quarterly basis (Q1 to Q4). The number of freelancers hired and the flat payment made per freelancer in each quarter are shown in the bar graphs below.**

What is the approximate weighted average payment made per freelancer hired across the entire year?



SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) Rs. 4156.92 (b) Rs. 4210.75 (c) Rs. 4225.50 (d) Rs. 4264.29

ANSWER KEY · Mock Set 02

26 (a)	27 (a)	28 (a)	29 (b)	30 (d)
31 (c)	32 (b)	33 (d)	34 (a)	35 (b)
36 (c)	37 (c)	38 (b)	39 (b)	40 (a)
41 (c)	42 (a)	43 (a)	44 (c)	45 (a)
46 (b)	47 (d)	48 (d)	49 (b)	50 (c)
51 (d)	52 (b)	53 (d)	54 (b)	55 (b)
56 (d)	57 (b)	58 (d)		

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 **Ans (a)**

76.2%

Female: 96 + 60 + 55 + 88 + 82 = 381 ⇒ औसत = 381/5 = **76.2%**।

Q27 **Ans (a)**

32%

Blue = 300 + 20% of Other (100) = 300 + 20 = 320 ⇒ **32%**।

Q28 **Ans (a)**

324 minutes

कुल = 40 घंटे = 2400 मिनट। Mathematics = 35% = 840 मिनट ⇒ बचत 20% = 168 मिनट, आधा = 84 Reasoning को।
Reasoning = 10% of 2400 + 84 = 240 + 84 = **324 मिनट**।

Q29 **Ans (b)**

54°

(30% − 15%) × 3.6 = **54°**।

Q30 **Ans (d)**

70 units; February

अंतर (A − B): Jan 30, Feb 40, Mar −10, Apr 10 ⇒ कुल = **70 units**; सबसे अधिक अंतर **February** (40)।

Q31 **Ans (c)**

12,000

तीन सबसे बड़े आयु-वर्ग: 15% + 10% + 5% = 30% of 1,20,000 = 36,000 ⇒ औसत = **12,000**।

Q32 **Ans (b)**

30,000

A = 28% = 70,000 ⇒ 1% = 2500 ⇒ E = 12% = **30,000**।

Q33 **Ans (d)**

30 terabytes/hr, 30 terabytes/hr

A का अधिकतम 65 − B का न्यूनतम 35 = 30; A का न्यूनतम 30 − B का अधिकतम 60 = 30 ⇒ **30, 30 terabytes/hr**।

Q34 **Ans (a)**

65.1

कुल अंक = 45×60 + 50×70 + 40×55 + 60×65 + 40×75 = 15,300; छात्र = 235 ⇒ औसत ≈ **65.1**।

Q35 **Ans (b)**

465 L; Bike

Car 105, Bus 100, Bike 55, Truck 115, Van 90 ⇒ कुल **465 L**; सबसे कम **Bike**।

Q36 **Ans (c)**

0.25

HR 10% + Operations 15% = 25% ⇒ प्रायिकता **0.25**।

Q37 **Ans (c)**

23,333 litres

Canal 45% − Tube Well 30% = 15% = 14,000 L ⇒ कुल ≈ 93,333 L।
Tank + Rainwater = 25% ≈ **23,333 litres**।

Q38 **Ans (b)**

5:2

Metro 20% → 25%; Walking/Cycling 10% ⇒ 25 : 10 = **5 : 2**।

Q39 **Ans (b)**

8.33%

लक्ष्य 80/shift: अंतर = -20, -5, -20, +21, +3, -19 ⇒ शुद्ध कमी = 40। 40/480 × 100 ≈ **8.33%**।

Q40 **Ans (a)**

Rs4,00,000

Equity 40% + Gold 15% = 55% ≥ 2,20,000 ⇒ कुल ≥ 2,20,000/0.55 = **Rs 4,00,000**।

Q41 **Ans (c)**

आकृति 4

45 से अधिक नहीं: Node A — 40, 30; Node B — 35, 45 ⇒ कुल **4**।

Q42 **Ans (a)**

Mumbai

Mumbai के तीनों zone लगभग 220, 210, 215 ⇒ सबसे कम औसत **Mumbai**।

Q43 **Ans (a)**

0%

R&D 20% → 40%; बढ़े 20% को Misc और Infra से बराबर (10%–10%) लिया ⇒ Misc = 10 - 10 = **0%**।

Q44 **Ans (c)**

135

(120 + 150 + 130 + 140 + 110 + 160)/6 = 810/6 = **135**।

Q45 **Ans (a)**

3/10

108/360 = **3/10**।

Q46 **Ans (b)**

360

HR 10% ⇒ 120 ⇒ 1% = 12। (Engineering + Sales) - (Marketing + Operations) = 60% - 30% = 30% = **360**।

Q47 **Ans (d)**

50%

Deciduous = 35% + Alpine 15% = **50%**।

Q48 **Ans (d)**

180%, 12.5%

EV: 40 → 112 ⇒ (72/40) × 100 = 180%; ICE: 160 → 140 ⇒ 12.5% कमी ⇒ **180%, 12.5%**।

Q49 **Ans (b)**

Rs2,16,000

Online Tutors = 15% of 12,00,000 = 1,80,000 ⇒ 20% वृद्धि = **Rs 2,16,000**।

Q50 **Ans (c)**

570,000

Organic Search = 250 + 350 = 600 हज़ार ⇒ 5% bounce = 30,000 ⇒ engaged = **5,70,000**।

Q51 **Ans (d)**

8.70

EES: Data Science = 61.5, Cybersecurity = 52.8, Cloud = 59.2, AI = 58.5।
अंतर = 61.5 - 52.8 = **8.70**।

Q52 **Ans (b)**

8:5

Basketball 15%: 2/3 = 10% Cricket को ⇒ Cricket 40%; 5% Badminton को ⇒ Badminton 25% ⇒ **8 : 5**।

Q53 **Ans (d)**

Rs. 8840

A = 18,000 पर 18% = 3240; बाकी चार में हर एक 8000: (14 + 28 + 9 + 19)% of 8000 = 5600।
कुल लाभ = **Rs 8,840**।

Q54 **Ans (b)**

Rs50,30,000

Commerce = 230 × 5000 = 11,50,000; बाकी (320 + 210 + 160 + 280 = 970) × 4000 = 38,80,000।
कुल = **Rs 50,30,000**।

Q55 **Ans (b)**

180°

Sector I = 32 + 28 + 15 = 75% = 270°; Sector II + III = 15 + 10 = 25% = 90° ⇒ अंतर **180°**।

Q56 **Ans (d)**

30%

Coal 30% का आधा = 15% ⇒ Solar & Wind = 15 + 15 = **30%**।

Q57 **Ans (b)**

आकृति 1

A > B केवल Scenario 1 (40 vs 35: 14.3%) और Scenario 4 (65 vs 50: 30%) में; 15% से अधिक केवल Scenario 4 ⇒ **1**।

Q58 **Ans (d)**

Rs. 4264.29

कुल भुगतान = 12×4000 + 18×3500 + 25×4500 + 15×5000 = 2,98,500; freelancers = 70।

औसत = 2,98,500/70 ≈ **Rs 4264.29**।

GOPAL VERMA ENGLISH
अबकी बार, आखिरी बार

CHAPTER 23

Statistics & Probability

Mean · Median · Mode · Range · SD · Probability

52	2	2	4
Questions	Topics	Mock Sets	Tips

TIPS & TRICKS · Statistics & Probability

01 Median class
N/2 वाला स्थान जिस वर्ग में आए; median = l + ((N/2 - cf)/f) × h।

02 Mode / Modal class
सबसे अधिक आवृत्ति वाला वर्ग।

03 Frequency polygon
बिंदु वर्ग के मध्य बिंदुओं पर लगाए जाते हैं; कुल = सभी बिंदुओं की आवृत्ति का योग।

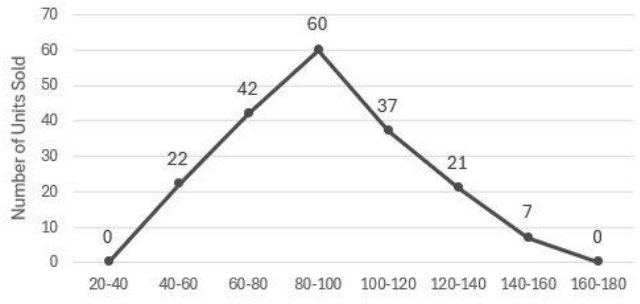
04 Probability
अनुकूल ÷ कुल — 'दिया गया है कि...' हो तो कुल केवल उसी समूह का लें।

Mock Set 01 Q1–Q25 · 30 Sep → 13 Oct

TOPIC · Elementary Statistics (1/2)

Q1 Read the following frequency polygon which represents class interval (Living Area (Square Meters)) on the x-axis and frequency (Number of Units Sold) on the y-axis, and answer the following question:

If the median apartment size is defined as the interval containing the middle unit, which interval is the median class?

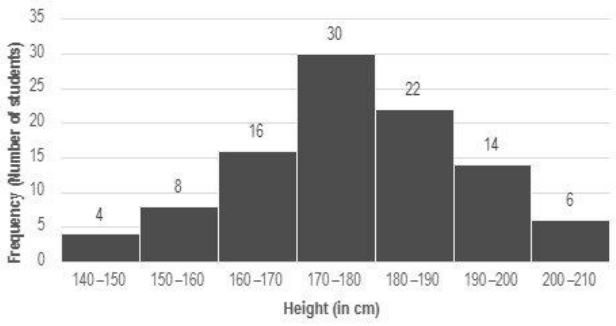


SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 60–80 sq m
(b) 100–120 sq m
(c) 80–100 sq m
(d) 120–140 sq m

Q2 Study the given histogram that shows the height (in cm) of 100 students in an athletic team and answer the question that follows:

If 10 students from the 170–180 group shift to 150–160, which becomes the new modal class?

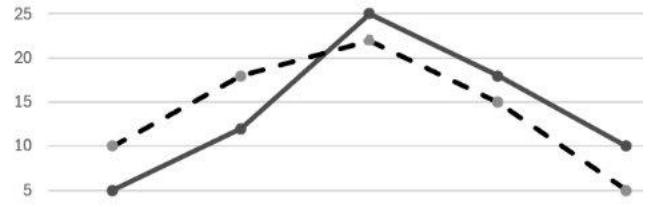


SSC CGL 2026 · 30 Sep 2026 · Shift-3

(a) 150-160
(b) 160-170
(c) 170-180
(d) 180-190

Q3 **Examine the frequency polygon on math Exam Scores (out of 100), Groups: Batch A vs. Batch B and answer the following question.**

In the frequency polygon comparison of Batch A and Batch B, at which score interval is the difference in frequencies between the two batches the greatest?

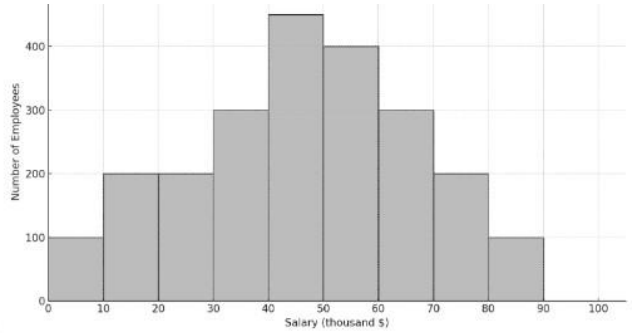


SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 0 – 20 (b) 20 – 40 (c) 80 – 100 (d) 40 – 60

Q4 **Examine the histogram showing how many employees fall within various salary ranges (in thousands of dollars). Use this data to answer the questions below.**

Which of the following salary ranges has no employees?



SSC CGL 2026 · 1 Oct 2026 · Shift-3

(a) 80–90 thousand (b) 0–10 thousand
(c) 90–100 thousand (d) 60–70 thousand

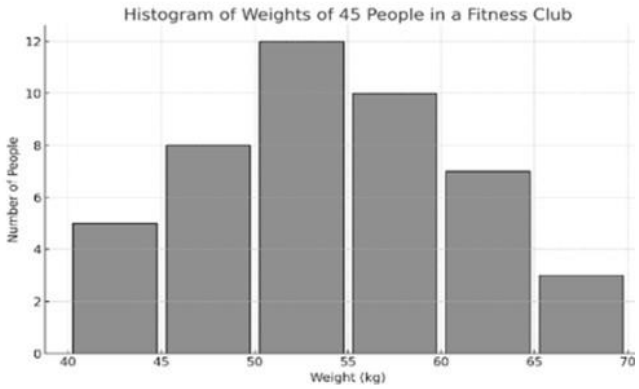
Q5 **In a histogram, what does the height of each bar represent?**

SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) Class width (b) Frequency density
(c) Class midpoint (d) None of these

Q6 **This histogram represents the weights (in kg) of 45 people in a fitness club.**

Which weight interval represents approximately one-fourth of the total people?



SSC CGL 2026 · 5 Oct 2026 · Shift-3

(a) 40-45 kg (b) 50-55 kg (c) 55-60 kg (d) 60-65 kg

Q7 **Read the following frequency polygon which represents class interval (Axis Daily Traffic Volume (Hundreds of Unique Users)) on the x-axis and frequency (Number of Days) on the y-axis, and answer the following question:**

Which interval shows the sharpest decline in number of days compared to the previous interval?

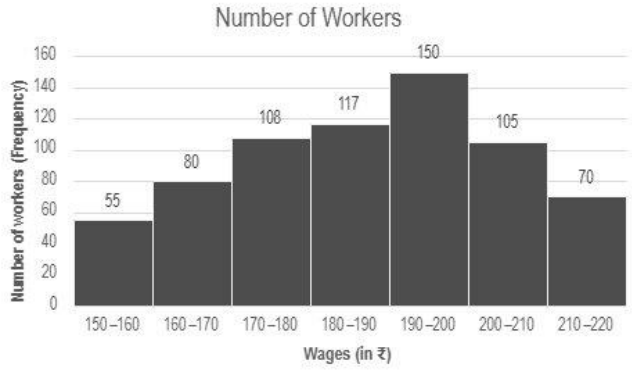


SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 70–90 to 90–110 (b) 110–130 to 130–150
(c) 90–110 to 110–130 (d) 130–150 to 150–170

Q8 **Read the given histogram carefully which shows daily wages (in Rs) of workers along with the number of workers (frequency) in each class interval and answer the question that follows:**

Determine the median class of wages.

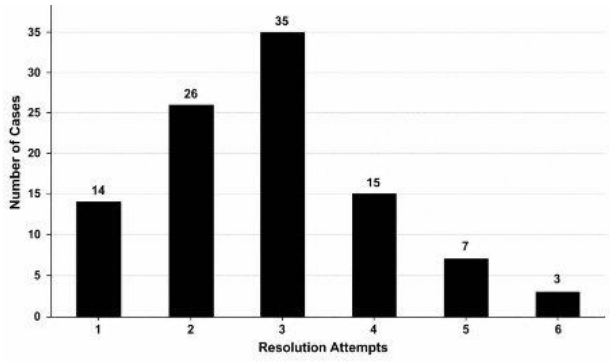


SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 190–200 (b) 200–210 (c) 170–180 (d) 180–190

Q9 **An E-Commerce platform tracks the number of attempts it takes to resolve customer disputes filed under a premium merchant category. The bar-graph below presents the distribution:**

Find the absolute difference between the mode and the median of this distribution.

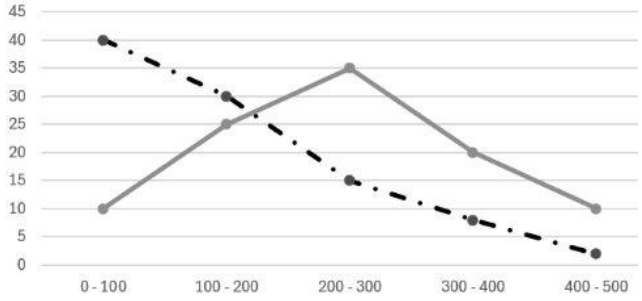


SSC CGL 2026 · 6 Oct 2026 · Shift-3

(a) 0 (b) 1 (c) 2 (d) 3

Q10 **Examine the frequency polygon on Monthly Electricity Consumption (in kWh), Groups: Residential Households vs. Small Businesses to answer the following question.**

What is the total electricity consumption group (kWh) where residential usage dominates the most compared to businesses?

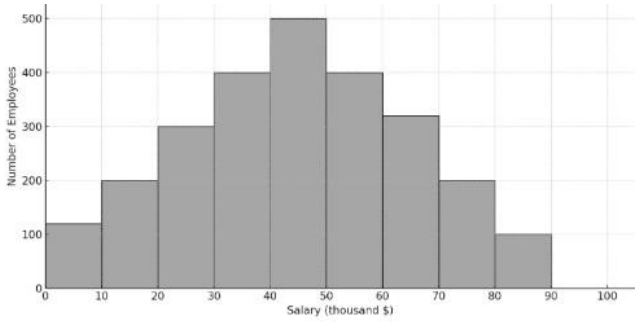


SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 0 – 100 (b) 100 – 200 (c) 300 – 400 (d) 400 – 500

Q11 **Study the histogram and use this information to answer the following questions.**

Which salary range has the second highest number of employees?

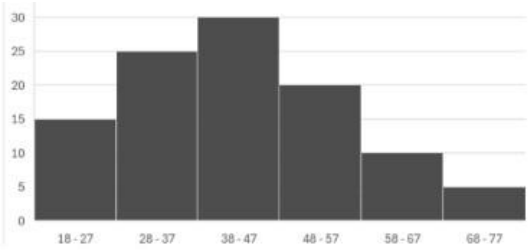


SSC CGL 2026 · 7 Oct 2026 · Shift-3

(a) 20–30 thousand (b) 50–60 thousand
(c) 40–50 thousand (d) 70–80 thousand

Q12 **Given below are the ages of 100 customers who visited a store in a day, answer the following questions based on this histogram.**

Calculate the percentage of customers aged between 28 and 47 years compared to the total number of customers.

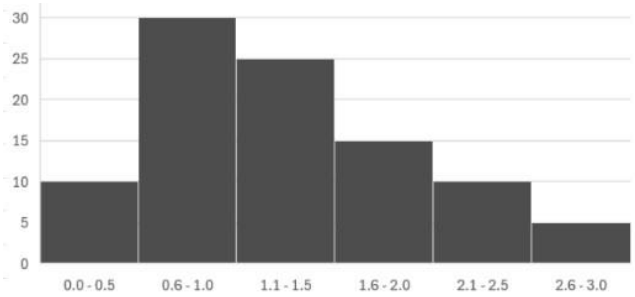


SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 52% (b) 60% (c) 65% (d) 70%

Q13 **Given below the website page load times (in seconds) for a sample of 100 user visits, answer the following questions based on this histogram.**

What percentage of websites have a page load time between 0.6 and 1.5 seconds?

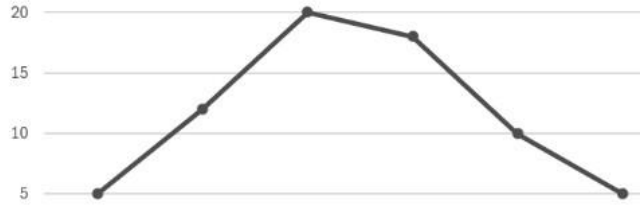


SSC CGL 2026 · 8 Oct 2026 · Shift-3

(a) 45% (b) 58% (c) 55% (d) 60%

Q14 **Examine the frequency polygon on battery life (in hours) of Mobile Phones below to answer the following question.**

What is the total number of phones recorded in this data?

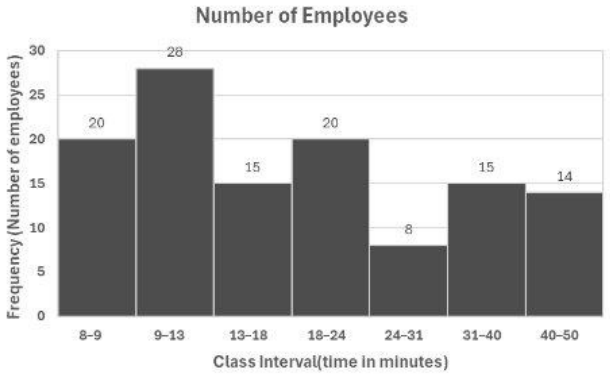


SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 65 (b) 70 (c) 75 (d) 80

Q15 **Read the following histogram which represents the time in minutes on x-axis and number of employees on y-axis and answer the following question:**

Suppose the company offers a bonus to employees who complete their task in less than 18 minutes. Find the percentage of employees eligible for the bonus.

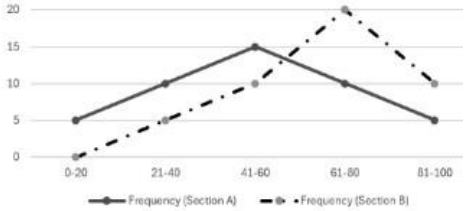


SSC CGL 2026 · 9 Oct 2026 · Shift-1

(a) 48.5% (b) 57% (c) 52.5% (d) 43%

Q16 **Examine the frequency polygon on student performance in a Math test between Section A and Section B, to answer the following question.**

What is the modal class for Section B?

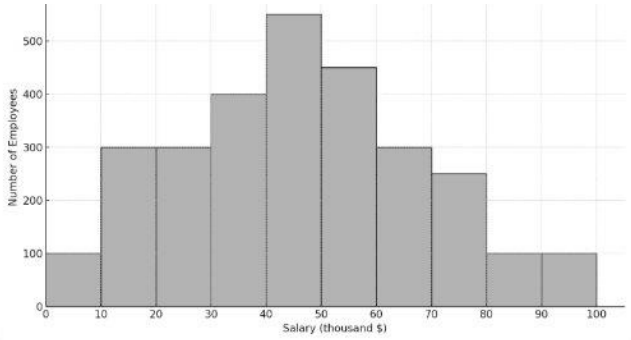


SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 21–40 (b) 41–60 (c) 61–80 (d) 81–100

Q17 **Examine the histogram showing how many employees fall within various salary ranges (in thousands of dollars). Use this data to answer the questions below.**

Based on the histogram, which salary range has the highest number of employees?



SSC CGL 2026 · 9 Oct 2026 · Shift-3

(a) 20–30 thousand (b) 30–40 thousand
(c) 40–50 thousand (d) 60–70 thousand

Q18 **Examine the frequency polygon showing heights of Plants (in cm) in a Garden and answer the following question.**

What is the total number of plants recorded?

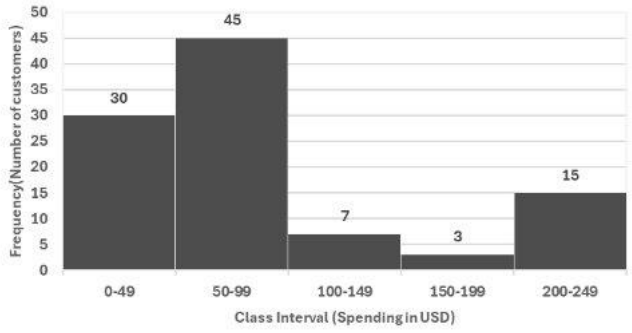


SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 75 (b) 80 (c) 90 (d) 85

Q19 **Read the following histogram carefully which represents the spending (in USD) on the x-axis and the number of customers (frequency) on the y-axis, and answer the question that follows:**

What percentage of customers spend more than USD 150 compared to those who spend less than USD 50? (Answer correct to one decimal place)

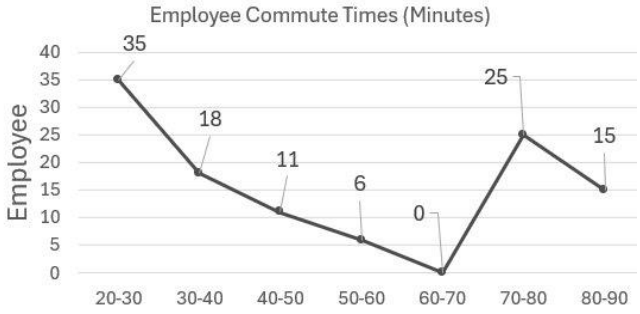


SSC CGL 2026 · 10 Oct 2026 · Shift-2

(a) 40% (b) 55% (c) 60% (d) 75%

Q20 **Read the following frequency polygon which represents class interval (time) on the x-axis and frequency (number of employees) on the y-axis, and answer the following question:**

What is the total number of employees with commute times less than 50 minutes?

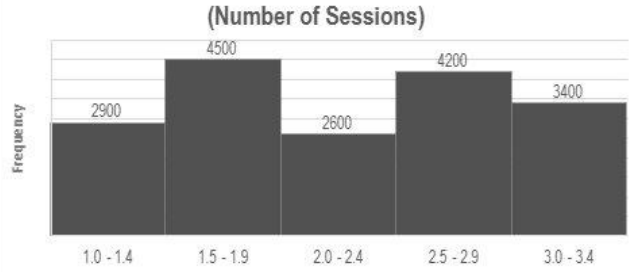


SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 38 (b) 67 (c) 42 (d) 64

Q21 **Read the following histogram carefully which represents the class interval (in seconds) on the x-axis and the number of sessions (frequency) on the y-axis, and answer the question that follows:**

If the number of sessions in the 3.0–3.4 range is reduced by 1000, what will be the approximate new percentage for this category?

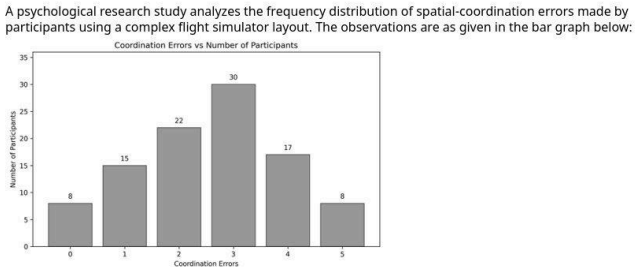


SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 17.2% (b) 14.5% (c) 19.1% (d) 18.3%

Q22 **A psychological research study analyzes the frequency distribution of spatial-coordination errors made by participants using a complex flight simulator layout. The observations are as given in the bar graph below:**

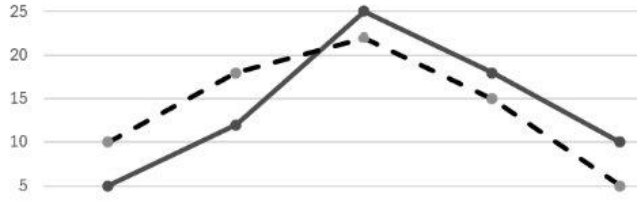
Find the total number of participants whose recorded errors fall strictly outside the closed interval [a - 1, a + 1], where "a" represents the nearest whole number to the arithmetic mean of the distribution.



SSC CGL 2026 · 10 Oct 2026 · Shift-3

(a) 31 (b) 33 (c) 48 (d) 70

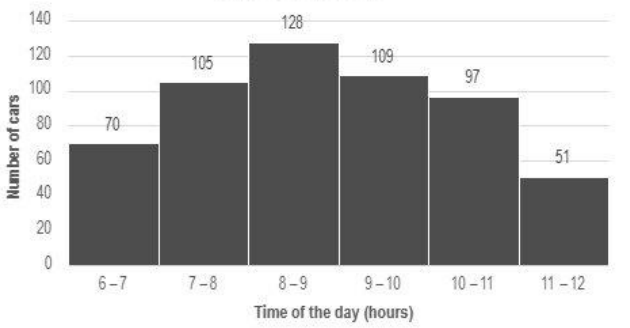
Q23 Examine the frequency polygon on math Exam Scores (out of 100), Groups: Batch A vs. Batch B and answer the following question. Which batch has a higher average (approximate) score, assuming midpoints represent class scores?



SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) Batch A (b) Batch B
(c) Both have equal average (d) Cannot be determined

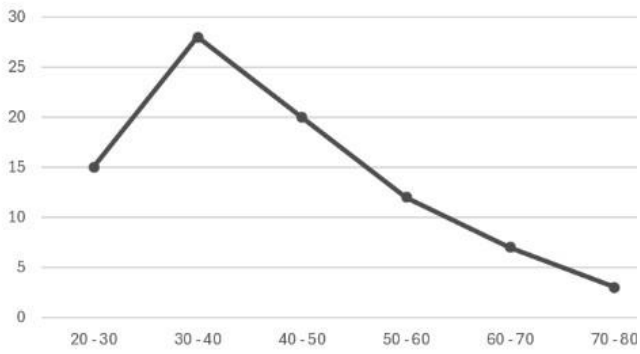
Q24 Read the given histogram carefully which shows the number of cars observed at different time intervals of the day (in hours) and answer the question that follows: Find the time interval during which more than 20% of total cars passed.



SSC CGL 2026 · 12 Oct 2026 · Shift-3

(a) 9-10 (b) 7-8 (c) 10-11 (d) 8-9

Q25 Examine the frequency polygon below to answer the following question. What is the total number of participants?



SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 75 (b) 85 (c) 90 (d) 80

ANSWER KEY · Mock Set 01				
1 (c)	2 (d)	3 (b)	4 (c)	5 (b)
6 (b)	7 (c)	8 (d)	9 (a)	10 (a)
11 (b)	12 (a)	13 (b)	14 (b)	15 (c)
16 (c)	17 (c)	18 (b)	19 (c)	20 (d)
21 (b)	22 (a)	23 (a)	24 (d)	25 (b)

Mock Set 01 · Solutions

Answer · Explanation · Key facts

Q1 Ans (c)

80–100 sq m

कुल = 0 + 22 + 42 + 60 + 37 + 21 + 7 + 0 = 189 ⇒ बीच की इकाई = 95वीं।
संचयी: 22, 64, 124 ⇒ 95वीं इकाई **80–100 sq m** में।

Q2 Ans (d)

180–190

10 छात्र हटने पर 170–180 = 20; अब सबसे अधिक 180–190 (22) ⇒ नया modal class **180–190**।

Q3 Ans (b)

20 – 40

अंतर: 0–20 → 5, 20–40 → 6, 40–60 → 3, 60–80 → 3, 80–100 → 5 ⇒ सबसे अधिक **20–40**।

Q4 Ans (c)

90–100 thousand

Histogram में 90–100 हज़ार पर कोई bar नहीं ⇒ **90–100 thousand**।

Q5 Ans (b)

Frequency density

Histogram में bar का क्षेत्रफल आवृत्ति दर्शाता है, इसलिए ऊँचाई = आवृत्ति/वर्ग-चौड़ाई = **Frequency density** (बराबर चौड़ाई हो तो यही आवृत्ति के अनुपाती)।

Q6 Ans (b)

50–55 kg

45 का एक-चौथाई ≈ 11.25 ≈ 12 ⇒ **50–55 kg** (12 लोग)।

Q7 Ans (c)

90–110 to 110–130

गिरावट: 110 → 72 (38), 72 → 30 (42), 30 → 15 (15) ⇒ सबसे तेज़ **90–110 से 110–130**।

Q8 **Ans (d)**

180–190

कुल = 685 ⇒ median स्थान ≈ 343। संचयी: 55, 135, 243, 360 ⇒ median class **180–190**।

Q9 **Ans (a)**

0

Mode = 3 (35 cases)। कुल 100 ⇒ 50वीं-51वीं: संचयी 14, 40, 75 ⇒ median = 3 ⇒ अंतर **0**।

Q10 **Ans (a)**

0 – 100

Residential - Business: 0–100 पर 40 - 10 = 30 (सबसे अधिक) ⇒ **0–100**।

Q11 **Ans (b)**

50–60 thousand

सबसे अधिक 40–50 (500); दूसरे स्थान पर 400 वाले वर्ग — विकल्पों में **50–60 thousand**।

Q12 **Ans (a)**

52%

28–37: 25, 38–47: 30 ⇒ 55; ग्राफ़ का कुल = 15 + 25 + 30 + 20 + 10 + 5 = 105।

55/105 × 100 ≈ **52%**।

Q13 **Ans (b)**

58%

0.6–1.0: 30 + 1.1–1.5: 25 = 55; ग्राफ़ का कुल = 95 ⇒ 55/95 ≈ **58%**।

Q14 **Ans (b)**

70

5 + 12 + 20 + 18 + 10 + 5 = **70**।

Q15 **Ans (c)**

52.5%

18 मिनट से कम: 20 + 28 + 15 = 63; कुल = 120 ⇒ 63/120 = **52.5%**।

Q16 **Ans (c)**

61–80

Section B (dashed line) का शिखर 20 पर, वर्ग **61–80**।

Q17 **Ans (c)**

40–50 thousand

सबसे ऊँचा bar 40–50 (≈ 550) ⇒ **40–50 thousand**।

Q18 **Ans (b)**

80

8 + 15 + 25 + 17 + 10 + 5 = **80**।

Q19 **Ans (c)**

60%

150 से अधिक: 3 + 15 = 18; 50 से कम: 30 ⇒ 18/30 × 100 = **60%**।

Q20 **Ans (d)**

64

50 मिनट से कम: 35 + 18 + 11 = **64**।

Q21 **Ans (b)**

14.5%

कुल = 17,600। 3.0–3.4: 3400 - 1000 = 2400, नया कुल 16,600 ⇒ 2400/16600 ≈ **14.5%**।

Q22 **Ans (a)**

31

कुल = 100; Σfx = 15 + 44 + 90 + 68 + 40 = 257 ⇒ mean = 2.57 ⇒ a = 3 ⇒ अंतराल [2, 4]।

बाहर: errors 0, 1, 5 ⇒ 8 + 15 + 8 = **31**।

Q23 **Ans (a)**

Batch A

Batch A: (10×5 + 30×12 + 50×25 + 70×18 + 90×10)/70 ≈ 54.6;
Batch B: (10×10 + 30×18 + 50×22 + 70×15 + 90×5)/70 ≈ 46.3।

औसत अधिक **Batch A** का।

Q24 **Ans (d)**

8–9

कुल = 70 + 105 + 128 + 109 + 97 + 51 = 560 ⇒ 20% = 112। केवल 8–9 (128) अधिक ⇒ **8–9**।

Q25 **Ans (b)**

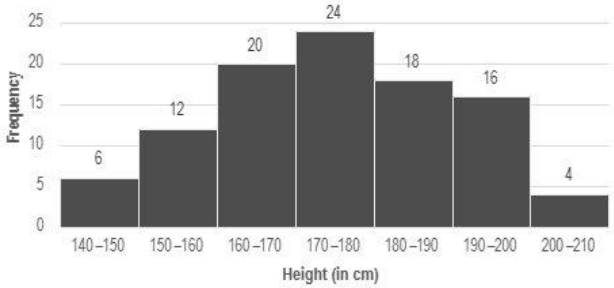
85

15 + 28 + 20 + 12 + 7 + 3 = **85**।

Mock Set 02 Q26–Q52 · 13 Oct → 28 Oct

TOPIC · Elementary Statistics (2/2)

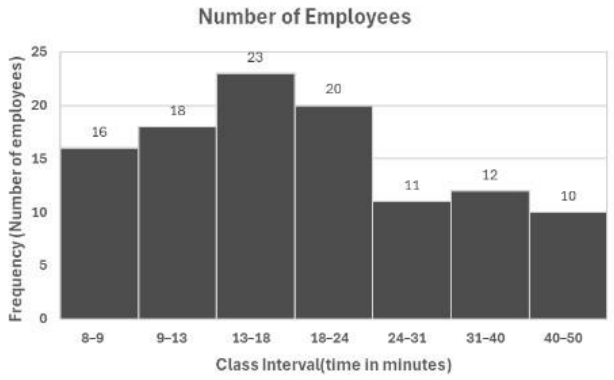
Q26 Study the given histogram that shows the height (in cm) of 100 students in an athletic team and answer the question that follows: Express the number of students with height less than 170 cm as the percentage (correct to one decimal place) of the number of students with height more than 160 cm.



SSC CGL 2026 · 13 Oct 2026 · Shift-2

(a) 53.7% (b) 29.1% (c) 46.3% (d) 73.5%

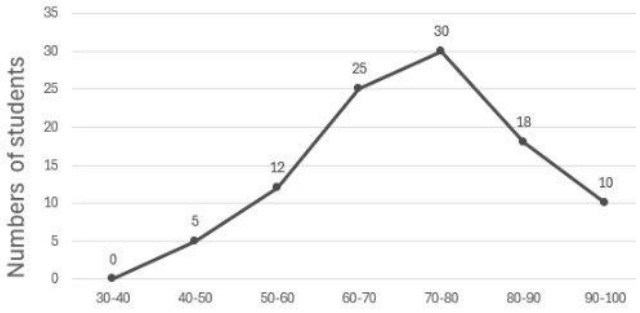
Q27 Read the following histogram which represents the time in minutes on x-axis and number of employees on y-axis and answer the following question: What percentage of employees spend more than 31 minutes?



SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 15% (b) 20% (c) 10% (d) 22%

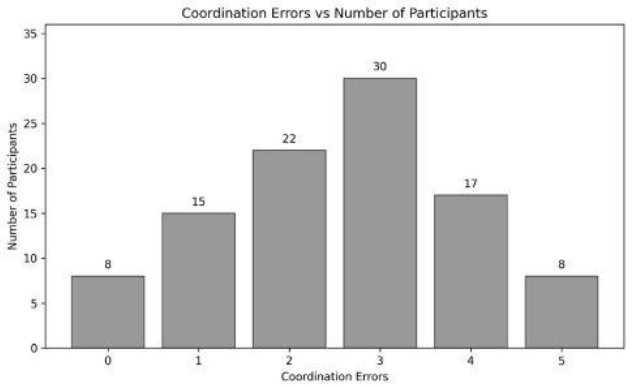
Q28 Read the following frequency polygon which represents class interval (marks) on the x-axis and frequency (number of students) on the y-axis, and answer the following question: If the pass mark is fixed at 50, how many students failed the exam?



SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 2 (b) 5 (c) 12 (d) 20

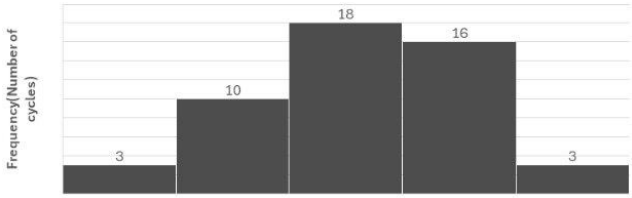
Q29 A psychological research study analyzes the frequency distribution of spatial-coordination errors made by participants using a complex flight simulator layout. The observations are as given in the bar graph below: Identify the error category that has the highest frequency and the error categories that have the lowest non-zero frequency. What is the minimum absolute numerical difference between the numerical value of the highest-frequency category and the numerical value of any of the lowest non-zero frequency categories?



SSC CGL 2026 · 13 Oct 2026 · Shift-3

(a) 5 (b) 4 (c) 3 (d) 2

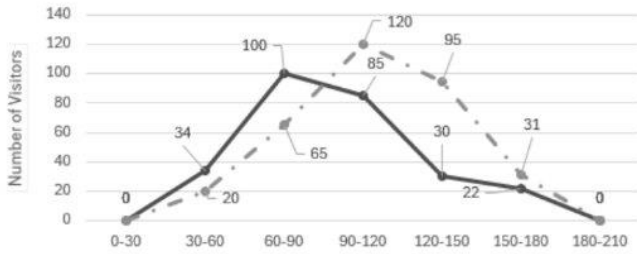
Q30 Study the given histogram carefully, which shows the battery life of cycles (in hours) on the x-axis and the number of cycles (frequency) on the y-axis, and answer the question that follows: What percentage of cycles have battery life less than 7 hours?



SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 64% (b) 62% (c) 32% (d) 26%

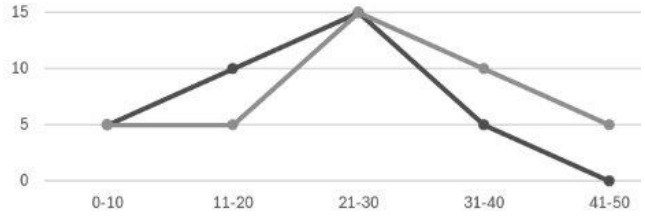
Q31 Read the following frequency polygon which represents class interval (Time Spent in Mall (Minutes)) on the x-axis and frequency (Number of Visitors) on the y-axis, and answer the following question: Using the standard continuous distribution formula for estimating statistical parameters, what is the approximate Median time (in minutes) spent by a visitor on Weekdays?



SSC CGL 2026 · 14 Oct 2026 · Shift-1

(a) 65.5 minutes (b) 90.5 minutes
(c) 71.5 minutes (d) 83.5 minutes

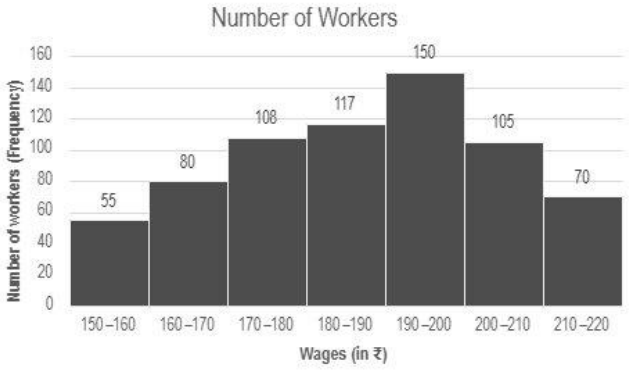
Q32 Examine the frequency polygon Comparison of the number of units sold per day for two different products over a month. to answer the following question. What is the modal class (interval with the highest frequency) for Product X and Product Y respectively?



SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) Product X: 11–20, Product Y: 31–40
(b) Product X: 21–30, Product Y: 21–30
(c) Product X: 21–30, Product Y: 31–40
(d) Product X: 11–20, Product Y: 21–30

Q33 Read the given histogram carefully which shows daily wages (in Rs) of workers along with the number of workers (frequency) in each class interval and answer the question that follows: Find the probability of selecting a worker whose wage lies in the modal class. (round to two decimal places)

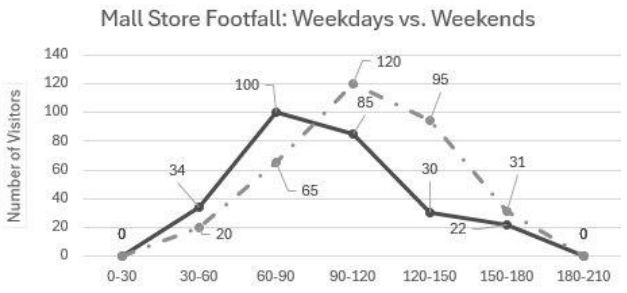


SSC CGL 2026 · 14 Oct 2026 · Shift-3

(a) 0.14 (b) 0.22 (c) 0.31 (d) 0.43

Q34 **Read the following frequency polygon which represents class interval (Time Spent in Mall (Minutes)) on the x-axis and frequency (Number of Visitors) on the y-axis, and answer the following question:**

Suppose the mall management charges a dynamic parking fee based on the time spent by visitors: Rs50 for under 60 minutes, Rs100 for 60–120 minutes, and Rs200 for over 120 minutes. What is the ratio of the total revenue collected on the Weekend compared to Weekdays from these mapped cohorts?

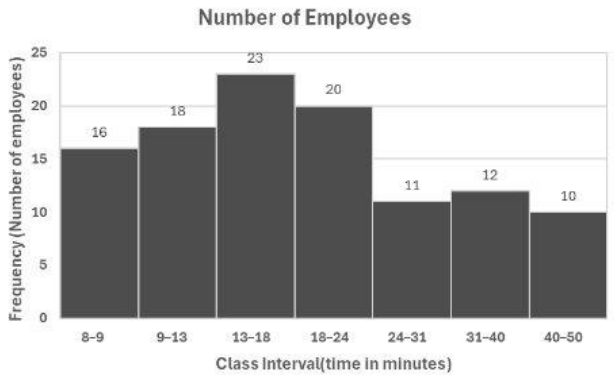


SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $\frac{139}{102}$ (b) $\frac{149}{102}$ (c) $\frac{149}{155}$ (d) $\frac{139}{155}$

Q35 **Read the following histogram which represents the time in minutes on x-axis and number of employees on y-axis and answer the following question:**

Calculate the approximate percentage difference between employees in 13–18 minutes and 24–31 minutes intervals.



SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 11% (b) 10% (c) 14% (d) 17%

Q36 **Read the following frequency polygon which represents class interval (steps walked in hundreds) on the x-axis and frequency (number of people) on the y-axis, and answer the following question:**

If the minimum requirement for "active walkers" is 80 hundreds of steps, how many people qualify?

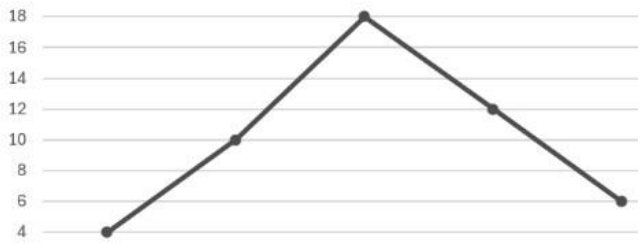


SSC CGL 2026 · 15 Oct 2026 · Shift-3

(a) 25 (b) 36 (c) 49 (d) 55

Q37 **Examine the frequency polygon below to answer the following question.**

What are the x-axis values (class midpoints) used to plot the frequency polygon?

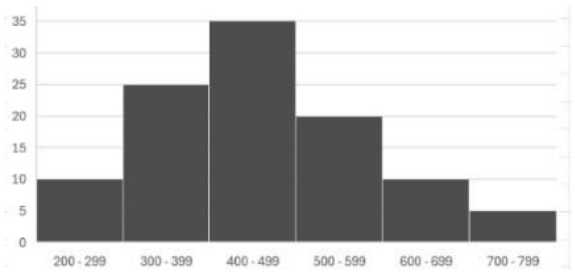


SSC CGL 2026 · 16 Oct 2026 · Shift-1

(a) 0, 50, 100, 150, 200 (b) 25, 75, 125, 175, 225
(c) 50, 100, 150, 200, 250 (d) 10, 30, 50, 70, 90

Q38 **Given below is the distribution of annual salaries (in thousands of INR) for 105 employees at a medium-sized company, answer the following questions based on this histogram.**

What percentage of employees earn between Rs300,000 and Rs499,999?

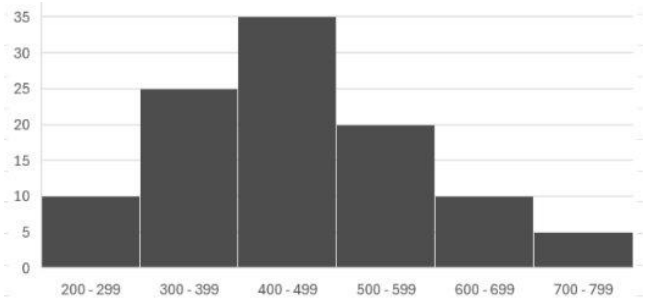


SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 50% (b) 60% (c) 57.14% (d) 80.67%

Q39 **Given below is the distribution of annual salaries (in thousands of INR) for 100 employees at a medium-sized company,answer the following questions based on this histogram.**

If 5 employees from the Rs400,000 - Rs499,999 range get promoted to the Rs500,000 - Rs599,999 range, what will be the new percentage of employees earning Rs500,000 or more?

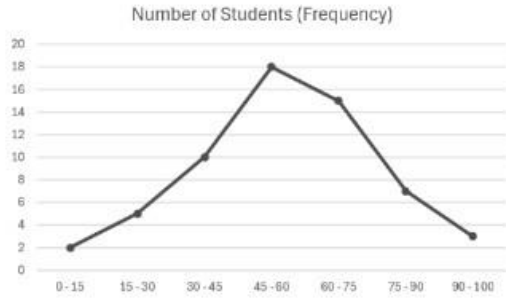


SSC CGL 2026 · 16 Oct 2026 · Shift-3

(a) 32.38% (b) 35.71% (c) 38.1% (d) 40%

Q40 **Examine the frequency polygon showing student scores on a Math Test (out of 100). Answer the following question.**

What is the midpoint of the class interval with the highest frequency in this data set?

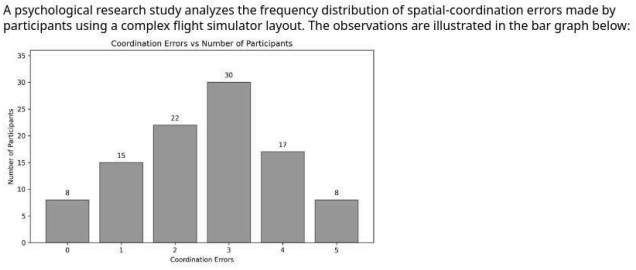


SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 52.5 (b) 52 (c) 45.2 (d) 60.5

Q41 **A psychological research study analyzes the frequency distribution of spatial-coordination errors made by participants using a complex flight simulator layout. The observations are illustrated in the bar graph below:**

Find the absolute difference between the median value and the arithmetic (weighted) mean of the given distribution.

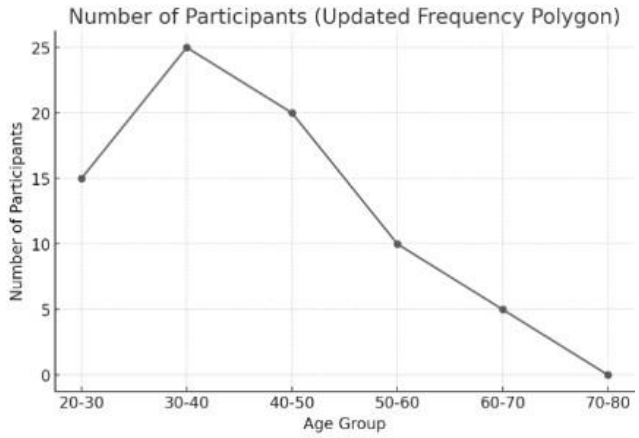


SSC CGL 2026 · 22 Oct 2026 · Shift-2

(a) 0.36 (b) 0.43 (c) 0.55 (d) 0.60

Q42 **Examine the frequency polygon below to answer the following question.**

What is the total number of participants?

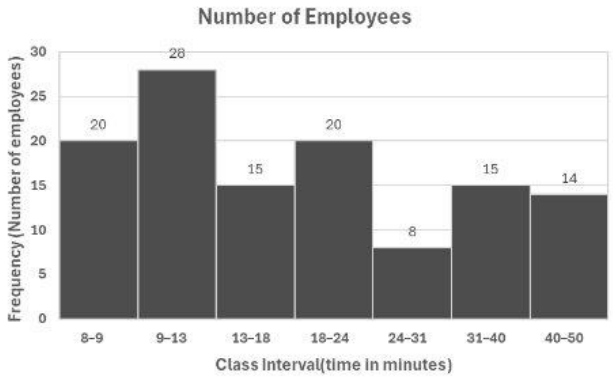


SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 75 (b) 85 (c) 90 (d) 73

Q43 **Read the following histogram which represents the time in minutes on x-axis and number of employees on y-axis and answer the following question:**

The difference between the employees in the 9-13 and 24-31 intervals is approximate what percentage of the total number of employees?

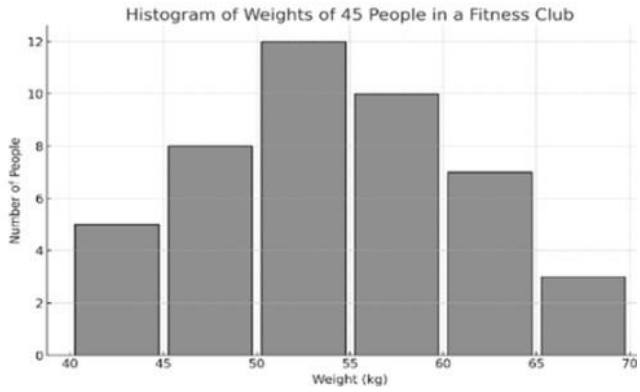


SSC CGL 2026 · 23 Oct 2026 · Shift-1

(a) 15% (b) 17% (c) 18% (d) 22%

Q44 **This histogram represents the weights (in kg) of 45 people in a fitness club.**

What percentage of people weigh between 55 and 65 kg?

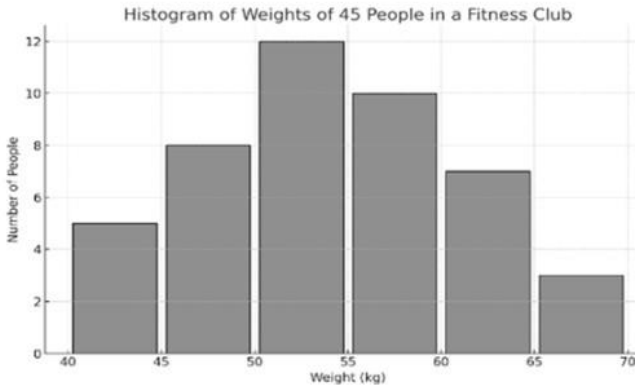


SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 37.8% (b) 40% (c) 44.5% (d) 50%

Q45 **This histogram represents the weights (in kg) of 45 people in a fitness club.**

What is the approximate mid-point of the class interval with the least number of people?

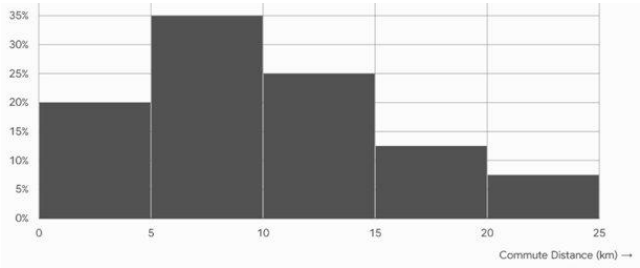


SSC CGL 2026 · 23 Oct 2026 · Shift-3

(a) 42.5 (b) 67.5 (c) 62.5 (d) 72.5

Q46 **A survey was conducted among 200 students to find out the distance they travel from their homes to school every day.**

Read the graph and answer the following question.
How many students travel 10 km or more to reach school?

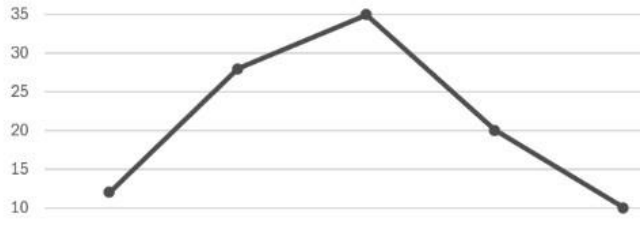


SSC CGL 2026 · 24 Oct 2026 · Shift-3

(a) 45 (b) 70 (c) 50 (d) 90

Q47 **Examine the frequency polygon below to answer the following question.**

What is the total number of households represented in this data?

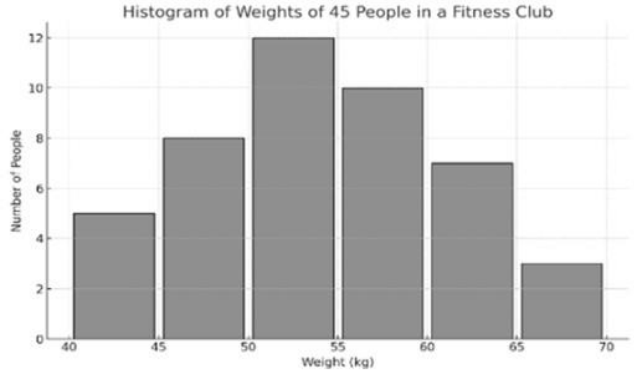


SSC CGL 2026 · 27 Oct 2026 · Shift-2

(a) 100 (b) 105 (c) 110 (d) 115

Q48 **This histogram represents the weights (in kg) of 45 people in a fitness club.**

If the club wants to create two groups, light (below 55 kg) and heavy (55 kg and above), how many people fall into each group?

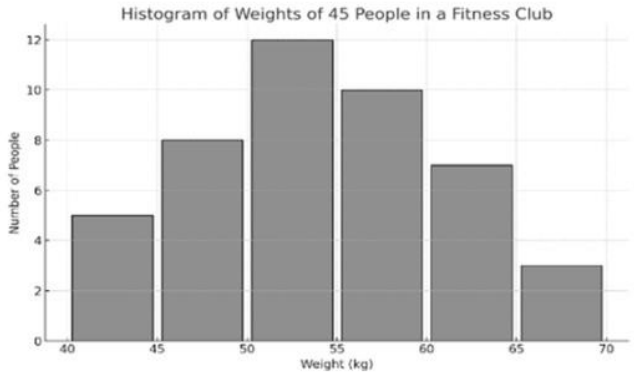


SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) Light: 25, Heavy: 20
(b) Light: 20, Heavy: 25
(c) Light: 30, Heavy: 15
(d) Light: 15, Heavy: 30

Q49 **This histogram represents the weights (in kg) of 45 people in a fitness club.**

If the club decides to award a prize to the weight interval with people closest to the average weight of the group, which class interval is most likely to receive the prize?



SSC CGL 2026 · 27 Oct 2026 · Shift-3

(a) 45-50 kg
(b) 50-55 kg
(c) 55-60 kg
(d) 60-65 kg

Q50 **Examine the frequency polygon below to answer the following question.**

What is the total number of students represented in this data?



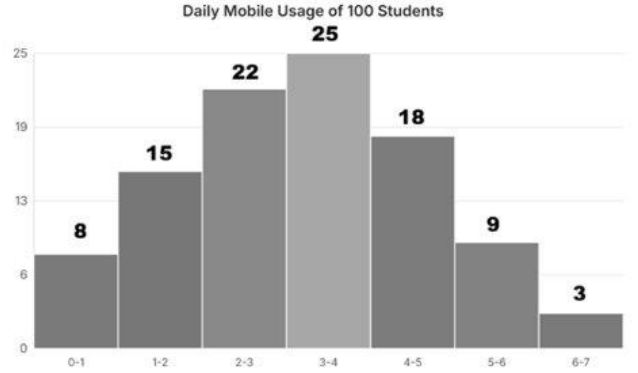
SSC CGL 2026 · 28 Oct 2026 · Shift-1

(a) 78
(b) 80
(c) 75
(d) 88

TOPIC · Probability

Q51 **A survey was conducted among 100 students at a senior secondary school to find out the average time they spend on mobile phones each day. The data collected is shown in the graph below:**

A school counsellor randomly selects 1 student from this surveyed group of 100 to discuss screen time habits. What is the probability that the chosen student is a heavy user (spending 4 or more hours daily)?

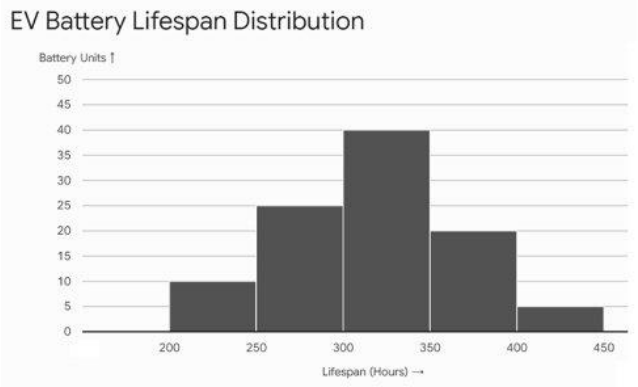


SSC CGL 2026 · 15 Oct 2026 · Shift-2

(a) $\frac{9}{100}$
(b) $\frac{3}{10}$
(c) $\frac{7}{10}$
(d) $\frac{18}{100}$

Q52 **Study the graph and answer.**

One battery is chosen at random from the group of all prototype batteries that lasted less than 350 hours. What is the probability that this chosen battery failed within the first 250 hours?



SSC CGL 2026 · 28 Oct 2026 · Shift-3

(a) $\frac{1}{10}$
(b) $\frac{2}{15}$
(c) $\frac{1}{5}$
(d) $\frac{2}{5}$

ANSWER KEY · Mock Set 02				
26 (c)	27 (b)	28 (b)	29 (d)	30 (d)
31 (b)	32 (b)	33 (b)	34 (b)	35 (a)
36 (b)	37 (b)	38 (c)	39 (c)	40 (a)
41 (b)	42 (a)	43 (b)	44 (a)	45 (b)
46 (d)	47 (b)	48 (a)	49 (b)	50 (a)
51 (b)	52 (b)			

Mock Set 02 · Solutions

Answer · Explanation · Key facts

Q26 **Ans (c)**

46.3%

170 से कम: 6 + 12 + 20 = 38; 160 से अधिक: 20 + 24 + 18 + 16 + 4 = 82 ⇒ 38/82 × 100 ≈ **46.3%**।

Q27 **Ans (b)**

20%

31 से अधिक: 12 + 10 = 22; कुल = 110 ⇒ **20%**।

Q28 **Ans (b)**

आकृति 5

50 से कम: 30–40 (0) + 40–50 (5) = **5**।

Q29 **Ans (d)**

आकृति 2

सबसे अधिक आवृत्ति: error 3 (30)। सबसे कम non-zero: error 0 और 5 (8 each)।

|3 - 0| = 3, |3 - 5| = 2 ⇒ न्यूनतम अंतर **2**।

Q30 **Ans (d)**

26%

7 घंटे से कम: 3 + 10 = 13; कुल = 50 ⇒ **26%**।

Q31 **Ans (b)**

90.5 minutes

Weekday: N = 34 + 100 + 85 + 30 + 22 = 271 ⇒ N/2 = 135.5। संचयी: 34, 134 ⇒ median class 90–120 (f = 85)।

Median = 90 + (135.5 - 134)/85 × 30 ≈ **90.5 मिनट**।

Q32 **Ans (b)**

Product X: 21–30, Product Y: 21–30

Product X का शिखर 15 (21–30); Product Y का शिखर 15 (21–30) ⇒ **दोनों 21–30**।

Q33 **Ans (b)**

0.22

Modal class 190–200 (150 workers); कुल 685 ⇒ 150/685 ≈ **0.22**।

Q34 **Ans (b)**

$\frac{149}{102}$

Weekday: <60 = 34 × 50 = 1700; 60–120 = 185 × 100 = 18,500; >120 = 52 × 200 = 10,400 ⇒ 30,600।

Weekend: <60 = 20 × 50 = 1000; 60–120 = 185 × 100 = 18,500; >120 = 126 × 200 = 25,200 ⇒ 44,700।

अनुपात = 44,700/30,600 = **149/102**।

Q35 **Ans (a)**

11%

13–18: 23, 24–31: 11 ⇒ अंतर 12; कुल 110 ⇒ 12/110 ≈ **11%**।

Q36 **Ans (b)**

36

80 सौ या अधिक: 20 + 11 + 5 + 0 = **36**।

Q37 **Ans (b)**

25, 75, 125, 175, 225

वर्ग 0–50, 50–100, ... के मध्य बिंदु = **25, 75, 125, 175, 225**।

Q38 **Ans (c)**

57.14%

300–399: 25 + 400–499: 35 = 60; कुल 105 ⇒ 60/105 ≈ **57.14%**।

Q39 **Ans (c)**

38.1%

Rs 5 लाख या अधिक: 20 + 10 + 5 = 35, + 5 promoted = 40; ग्राफ़ का कुल 105 ⇒ 40/105 ≈ **38.1%**।

Q40 **Ans (a)**

52.5

सबसे अधिक आवृत्ति 45–60 वर्ग में ⇒ मध्य बिंदु = **52.5**।

Q41 **Ans (b)**

0.43

Median: संचयी 8, 23, 45, 75 ⇒ 50वीं-51वीं = 3। Mean = 257/100 = 2.57।

अंतर = 3 - 2.57 = **0.43**।

Q42 **Ans (a)**

75

15 + 25 + 20 + 10 + 5 + 0 = **75**।

Q43 **Ans (b)**

17%

9–13: 28, 24–31: 8 ⇒ अंतर 20; कुल 120 ⇒ 20/120 ≈ **17%**।

Q44 **Ans (a)**

37.8%

55–60: 10 + 60–65: 7 = 17 ⇒ 17/45 × 100 ≈ **37.8%**।

Q45 **Ans (b)**

67.5

सबसे कम लोग 65–70 (3) ⇒ मध्य बिंदु **67.5**।

Q46 **Ans (d)**

90

10 km या अधिक: 25% + 12.5% + 7.5% = 45% of 200 = **90**।

Q47 **Ans (b)**

105

12 + 28 + 35 + 20 + 10 = **105**।

Q48 **Ans (a)**

Light: 25, Heavy: 20

55 से कम: 5 + 8 + 12 = 25; 55 या अधिक: 10 + 7 + 3 = 20 ⇒ **Light 25, Heavy 20**।

Q49 **Ans (b)**

50–55 kg

औसत = (42.5×5 + 47.5×8 + 52.5×12 + 57.5×10 + 62.5×7 + 67.5×3)/45 = 2437.5/45 ≈ 54.2 kg ⇒ **50–55 kg**।

Q50 **Ans (a)**

78

10 + 22 + 18 + 15 + 8 + 5 = **78**।

Q51 **Ans (b)**

$\frac{3}{10}$

4 घंटे या अधिक: 18 + 9 + 3 = 30 ⇒ P = 30/100 = **3/10**।

Q52 **Ans (b)**

$\frac{2}{15}$

350 घंटे से कम: 10 + 25 + 40 = 75; उनमें 250 से कम: 10 ⇒ P = 10/75 = **2/15**।

ALL THE BEST

Thank You!

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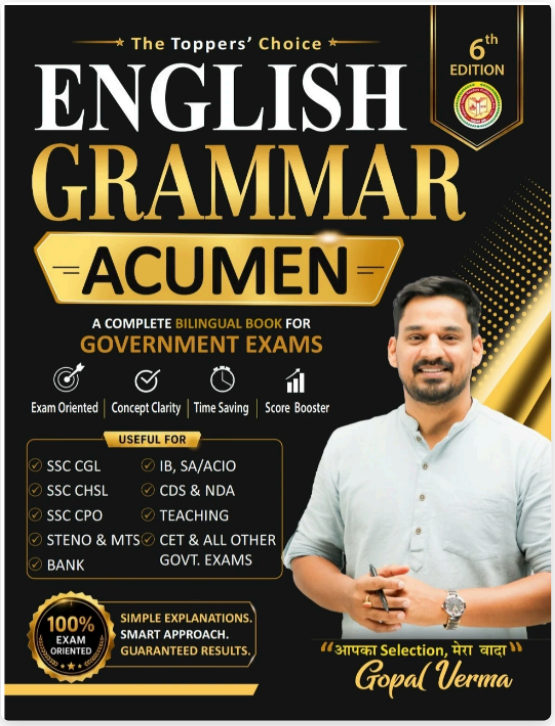


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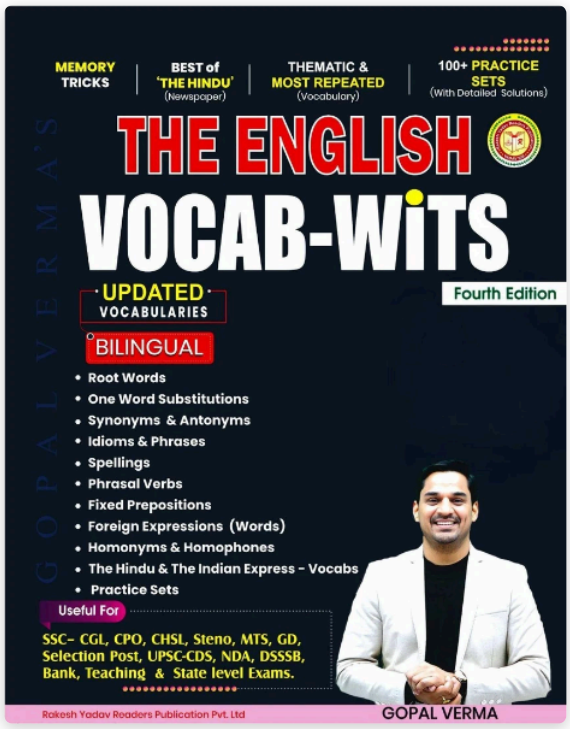
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