

SET Quantitative

Sample Paper – 3

Duration: 16 Minutes

Maximum Marks: 16

Instructions

- This paper contains **16 questions** carrying **1 mark** each.
- Each question has **four** options; choose the single best answer.
- **No negative marking.** Unattempted questions carry zero marks.
- Total time allotted: **16 minutes**.
- The exam is conducted in **Online CBT** mode.
- Answers and detailed solutions are provided at the end of this paper.

Quantitative Aptitude — 16 Questions

- Q1. A student scores 60% marks and fails by 40 marks. The passing mark is 70% of the total marks. Find the total marks.
- (A) 500
(B) 450
(C) 350
(D) 400
- Q2. A student's scores in 5 exams are 70, 75, 80, 65, and 60. What score must she obtain in the 6th exam to raise her average to 75?
- (A) 95
(B) 85
(C) 100
(D) 90
- Q3. A rectangle's length is measured 5% more than actual and its breadth 3% less than actual. What is the percentage error in the calculated area compared to the true area?



- (A) 1.85% increase
- (B) 2% increase
- (C) 2% decrease
- (D) 1.5% increase

Q4. What is the remainder when 2^{10} is divided by 7?

- (A) 1
- (B) 2
- (C) 4
- (D) 0

Q5. How many distinct prime factors does 360 have?

- (A) 2
- (B) 4
- (C) 5
- (D) 3

Q6. Five years ago, the ratio of ages of A and B was 3:4. Five years hence, the ratio will be 4:5. What is A's present age?

- (A) 30
- (B) 40
- (C) 35
- (D) 25

Q7. Two liquids A and B are mixed in the ratio 3:2. Liquid A costs Rs. 25 per litre and liquid B is water (cost nil). At what price per litre must the mixture be sold to obtain a 20% profit?

- (A) Rs. 18
- (B) Rs. 20
- (C) Rs. 15



(D) Rs. 22

Q8. A merchant gains 20% on the selling price. If he sells an article for Rs. 1500, find its cost price.

(A) Rs. 1000

(B) Rs. 1200

(C) Rs. 1250

(D) Rs. 1350

Q9. A shopkeeper uses a weight of 900 g instead of 1 kg. What is his actual percentage profit on cost?

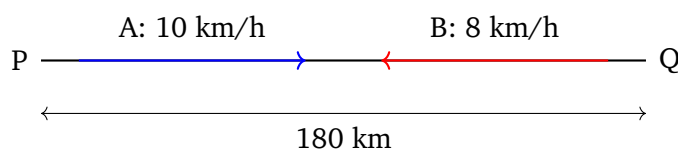
(A) 10%

(B) 9.09%

(C) 12%

(D) 11.11%

Q10. A and B travel the same distance. A takes 2 hours and B takes 3 hours to complete the journey. What is the ratio of their speeds?



(A) 2:3

(B) 1:1

(C) 3:2

(D) 4:3

Q11. Towns P and Q are 180 km apart. Two persons start simultaneously from P and Q, walking towards each other. The person from P walks at 10 km/h and the person from Q at 8 km/h. After how many hours will they meet?

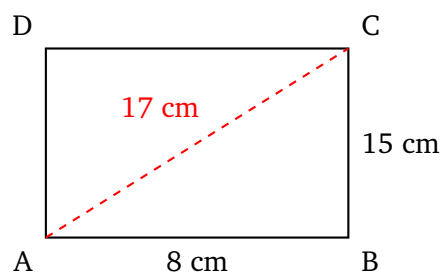


- (A) 10 hours
- (B) 12 hours
- (C) 9 hours
- (D) 15 hours

Q12. Find the number of positive integers satisfying $3x - 7 \leq 11$.

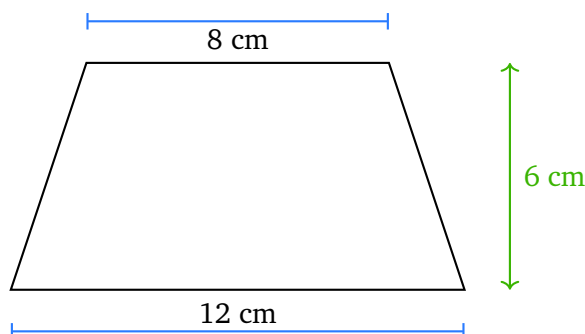
- (A) 5
- (B) 6
- (C) 7
- (D) 4

Q13. In a rectangle, the diagonal measures 17 cm and one side is 8 cm. Find the area of the rectangle.



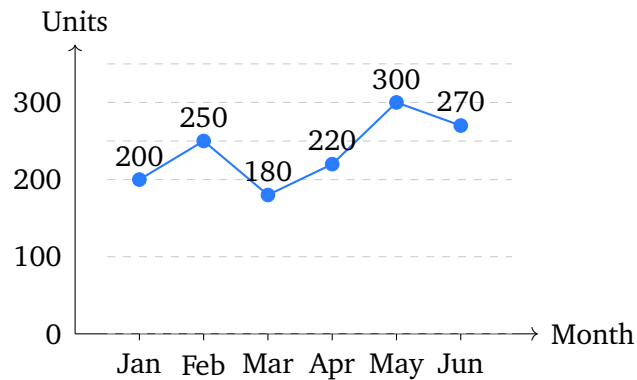
- (A) 90 cm^2
- (B) 136 cm^2
- (C) 85 cm^2
- (D) 120 cm^2

Q14. A trapezoid has parallel sides of 12 cm and 8 cm, and a perpendicular height of 6 cm. Find its area.



- (A) 72 cm^2
- (B) 48 cm^2
- (C) 60 cm^2
- (D) 54 cm^2

Q15. The line graph below shows the monthly production (in units) at a factory for January to June. What is the total production for all six months?



- (A) 1420
- (B) 1380
- (C) 1450
- (D) 1500

Q16. Two dice are thrown simultaneously. What is the probability of getting a sum equal to 8?

- (A) $\frac{1}{6}$
- (B) $\frac{5}{36}$
- (C) $\frac{7}{36}$
- (D) $\frac{1}{4}$



Detailed Solutions

Sol. 1.

Solution**Topic: Percentages / Marks**Let the total marks be T .Marks scored = $0.60T$; Passing marks = $0.70T$.

$$0.70T - 0.60T = 40 \implies 0.10T = 40 \implies T = 400$$

Answer: (D) [Go Back to Q 1](#)

Sol. 2.

Solution**Topic: Averages**Sum of first 5 scores = $70 + 75 + 80 + 65 + 60 = 350$.Required total for average 75 in 6 exams = $75 \times 6 = 450$.

$$6^{\text{th}} \text{ score} = 450 - 350 = 100$$

Answer: (C) [Go Back to Q 2](#)

Sol. 3.

Solution**Topic: Percentages / Error in Area**Let actual length = L and breadth = B .Measured length = $1.05L$; Measured breadth = $0.97B$.

$$\text{Calculated area} = 1.05L \times 0.97B = 1.0185LB$$

$$\text{Percentage error} = (1.0185 - 1) \times 100 = 1.85\% \text{ increase}$$

Answer: (A) [Go Back to Q 3](#)

Sol. 4.

Solution**Topic: Number System / Remainder**

Using modular arithmetic:

$$2^3 = 8 \equiv 1 \pmod{7}$$



$$2^9 = (2^3)^3 \equiv 1^3 = 1 \pmod{7}$$

$$2^{10} = 2^9 \times 2 \equiv 1 \times 2 = \boxed{2} \pmod{7}$$

Answer: (B) [Go Back to Q 4](#)

Sol. 5.

Solution

Topic: Number System / Prime Factorisation

$$360 = 2^3 \times 3^2 \times 5$$

Distinct prime factors: 2, 3, 5 $\Rightarrow \boxed{3}$ distinct prime factors.

Answer: (D) [Go Back to Q 5](#)

Sol. 6.

Solution

Topic: Ratio and Ages

Let ages 5 years ago be $3x$ and $4x$ for A and B respectively.

Five years hence their ages will be $(3x + 10)$ and $(4x + 10)$.

$$\frac{3x + 10}{4x + 10} = \frac{4}{5}$$

$$5(3x + 10) = 4(4x + 10) \Rightarrow 15x + 50 = 16x + 40 \Rightarrow x = 10$$

A's present age = $3(10) + 5 = \boxed{35}$ years.

Answer: (C) [Go Back to Q 6](#)

Sol. 7.

Solution

Topic: Ratio / Mixture / Profit

Ratio A:B = 3 : 2; Total = 5 parts.

$$\text{Cost of mixture per litre} = \frac{3 \times 25 + 2 \times 0}{5} = \frac{75}{5} = \text{Rs. } 15.$$

Selling price for 20% profit:

$$\text{SP} = 15 \times 1.20 = \boxed{\text{Rs. } 18}$$

Answer: (A) [Go Back to Q 7](#)



Sol. 8.

Solution**Topic: Profit and Loss**The merchant gains 20% *on the selling price*.Profit = 20% of SP = $0.20 \times 1500 = \text{Rs. } 300$.

$$\text{CP} = \text{SP} - \text{Profit} = 1500 - 300 = \boxed{\text{Rs. } 1200}$$

Answer: (B) [Go Back to Q 8](#)

Sol. 9.

Solution**Topic: Profit / Loss / False Weight**

The shopkeeper sells 900 g of goods while charging for 1000 g.

Assume cost price = Rs. 100 per kg.

Cost of 900 g = Rs. 90; Amount received (as if 1000 g) = Rs. 100.

$$\text{Profit} = 100 - 90 = 10; \quad \text{Profit\%} = \frac{10}{90} \times 100 = \boxed{11.11\%}$$

Answer: (D) [Go Back to Q 9](#)

Sol. 10.

Solution**Topic: Time, Speed and Distance**

For the same distance, speed is inversely proportional to time.

$$\frac{\text{Speed of A}}{\text{Speed of B}} = \frac{\text{Time of B}}{\text{Time of A}} = \frac{3}{2}$$

$$\text{Speed ratio} = \boxed{3 : 2}$$

Answer: (C) [Go Back to Q 10](#)

Sol. 11.

Solution**Topic: Time, Speed and Distance / Meeting Point**Combined speed = $10 + 8 = 18 \text{ km/h}$.

Distance between P and Q = 180 km.



$$\text{Time to meet} = \frac{180}{18} = \boxed{10 \text{ hours}}$$

Answer: (A) [Go Back to Q 11](#)

Sol. 12.

Solution

Topic: Algebra / Inequality

$$3x - 7 \leq 11 \implies 3x \leq 18 \implies x \leq 6$$

Positive integers satisfying $x \leq 6$: 1, 2, 3, 4, 5, 6

Count = $\boxed{6}$

Answer: (B) [Go Back to Q 12](#)

Sol. 13.

Solution

Topic: Geometry / Rectangle

By the Pythagorean theorem, if one side is 8 cm and diagonal is 17 cm:

$$\text{Other side} = \sqrt{17^2 - 8^2} = \sqrt{289 - 64} = \sqrt{225} = 15 \text{ cm}$$

$$\text{Area} = 8 \times 15 = \boxed{120 \text{ cm}^2}$$

Answer: (D) [Go Back to Q 13](#)

Sol. 14.

Solution

Topic: Geometry / Trapezoid

Area of a trapezoid = $\frac{1}{2}(a + b)h$, where a and b are parallel sides and h is the height.

$$\text{Area} = \frac{1}{2}(12 + 8)(6) = \frac{1}{2} \times 20 \times 6 = \boxed{60 \text{ cm}^2}$$

Answer: (C) [Go Back to Q 14](#)



Solution**Topic: Data Interpretation / Line Graph**

Reading values from the line graph:

Sol. 15.	Month	Jan	Feb	Mar	Apr	May	Jun
	Units	200	250	180	220	300	270

$$\text{Total} = 200 + 250 + 180 + 220 + 300 + 270 = \boxed{1420}$$

Answer: (A) [Go Back to Q 15](#)

Sol. 16.

Solution**Topic: Probability / Dice**Total outcomes when two dice are thrown = $6 \times 6 = 36$.Favourable outcomes (sum = 8): (2, 6), (3, 5), (4, 4), (5, 3), (6, 2) $\Rightarrow$ 5 outcomes.

$$P(\text{sum} = 8) = \frac{5}{36} = \boxed{\frac{5}{36}}$$

Answer: (B) [Go Back to Q 16](#)**Answer Key****Quick Answer Table:**

Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	D	5	D	9	D	13	D
2	C	6	C	10	C	14	C
3	A	7	A	11	A	15	A
4	B	8	B	12	B	16	B

Answer Distribution:

- A: Q3, Q7, Q11, Q15
- B: Q4, Q8, Q12, Q16
- C: Q2, Q6, Q10, Q14
- D: Q1, Q5, Q9, Q13

SET Sample Paper 3 — Quantitative Aptitude

Prepared by Collegedunia | <https://collegedunia.com/exams/set/sample-paper>