SET Quantitative

Sample Paper – 4

Duration: 16 Minutes **Maximum Marks: 16**

Instructions

- This section contains **16 Multiple Choice Questions (MCQs)**.
- Each correct answer carries **+1 mark**. There is **no negative marking**.
- Only **one** option is correct for each question.
- Attempt all questions within the allotted time of **16 minutes**.
- Click on the answer key table at the end to navigate to solutions.

Quantitative Aptitude

Q1. A television is marked at Rs. 15000. The shopkeeper offers a discount of 20%. What is the selling price?

(A) Rs. 12000

(B) Rs. 13000

(C) Rs. 11500

(D) Rs. 14000

Q2. A car travels from city X to city Y at 60 km/h and returns at 40 km/h. What is the average speed for the entire round trip?

(A) 50 km/h

(B) 48 km/h

(C) 52 km/h

(D) 45 km/h

Q3. A mixture contains milk and water in the ratio 5:3. The total volume is 800 ml. What percentage of the mixture is water?

(A) 30%

(B) 25%

(C) 40%

(D) 37.5%

Q4. How many factors does the number 72 have?

(A) 8

(B) 10

(C) 12

(D) 9

Q5. The sum of the first n natural numbers is 300. Find n.

(A) 24

(B) 25

(C) 20

(D) 30

Q6. On a map with scale 1:50000, two cities are shown 6 cm apart. What is the actual distance between them?

(A) 1.5 km

(B) 3 km

(C) 6 km

(D) 4.5 km

Q7. A invests Rs. 12000 for 4 months, B invests Rs. 8000 for 6 months, and C invests Rs. 6000 for 12 months. What is C's share of a total profit of Rs. 3500?

(A) Rs. 1000

(B) Rs. 2000

(C) Rs. 1200

(D) Rs. 1500

Q8. An item is marked at Rs. 5000. Two successive discounts of 30% and 10% are offered. Find the final selling price.

(A) Rs. 3000

(B) Rs. 3500

(C) Rs. 3150

(D) Rs. 3200

Q9. A trader purchases goods for Rs. 1200 and spends Rs. 300 on transportation. At what price must he sell the goods to earn a profit of 25%?

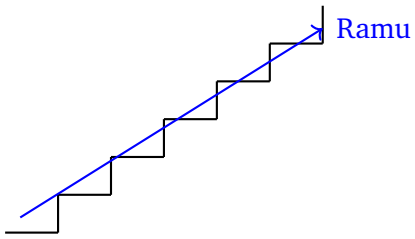
(A) Rs. 1875

(B) Rs. 1500

(C) Rs. 2000

(D) Rs. 1700

Q10. Ramu walks up a moving escalator taking 20 steps to reach the top. If Ramu's speed is 1 step per second and the escalator moves at 2 steps per second, how many steps are visible on the stationary escalator?



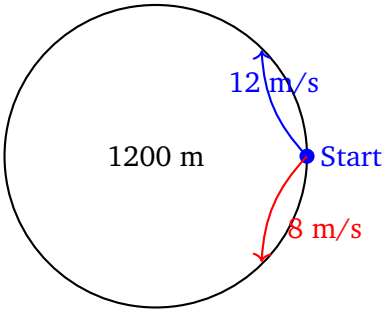
(A) 40

(B) 60

(C) 80

(D) 50

Q11. Two cyclists start from the same point on a circular track of 1200 m and ride in the same direction at 12 m/s and 8 m/s. After how many seconds will the faster cyclist lap the slower one?



(A) 200 s

(B) 240 s

(C) 360 s

(D) 300 s

Q12. A can complete a job in 10 days and B can complete it in 15 days. How many days will they take to finish the job if they work together?

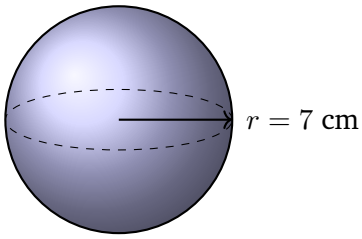
(A) 8 days

(B) 5 days

(C) 6 days

(D) 4 days

Q13. A sphere has a radius of 7 cm. Find its total surface area. (Use $\pi = \frac{22}{7}$)



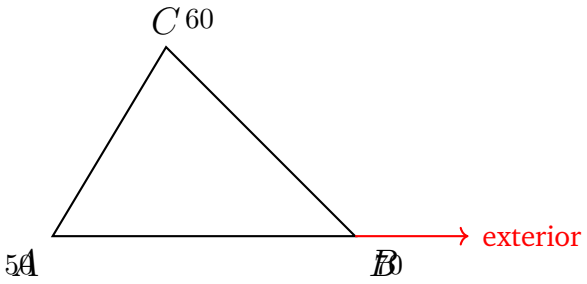
(A) 616 cm^2

(B) 550 cm^2

(C) 770 cm^2

(D) 484 cm^2

Q14. In triangle ABC, $\angle A = 50$ and $\angle B = 70$. What is the measure of the exterior angle at vertex C?



(A) 60°

(B) 120°

(C) 90°

(D) 110°

Q15. The table below shows annual sales (in Rs. lakhs) of Company B. In which year did Company B show the highest percentage growth over the previous year?

Year	Sales (Rs. lakhs)
2021	80
2022	96
2023	120
2024	156

(A) 2022

(B) 2021

(C) 2023

(D) 2024

Q16. From a group of 5 men and 4 women, a committee of 3 men and 2 women is to be formed. In how many ways can this be done?

(A) 40

(B) 45

(C) 60

(D) 90

Detailed Solutions

Q1.

Solution

Topic: Percentages / Discount

Marked Price $=$ Rs. 15000
Discount $= 20\%$

Selling Price $=$ Marked Price $\times (1 - \text{Discount\%})$

$$\text{SP} = 15000 \times 0.80 = \textbf{Rs. 12000}$$

Answer: (A) Go Back to Q 1

Q2.

Solution

Topic: Averages / Speed

When a vehicle covers equal distances at two different speeds, the average speed is the *harmonic mean*:

$$\text{Average Speed} = \frac{2 \times s_1 \times s_2}{s_1 + s_2} = \frac{2 \times 60 \times 40}{60 + 40} = \frac{4800}{100} = \textbf{48 km/h}$$

Answer: (B) Go Back to Q 2

Q3.

Solution

Topic: Percentages / Mixture

Milk : Water $= 5 : 3$, so total parts $= 8$.

Volume of water $= \frac{3}{8} \times 800 = 300$ ml

$$\%\ \text{water} = \frac{300}{800} \times 100 = \textbf{37.5\%}$$

Answer: (D) Go Back to Q 3

Q4.

Solution

Topic: Number System / Factors

Prime factorisation: $72 = 2^3 \times 3^2$

Number of factors $= (3+1)(2+1) = 4 \times 3 =$ **12**

Answer: (C) Go Back to Q 4

Q5.

Solution

Topic: Number System / Consecutive Integers

Sum of first n natural numbers $= \dfrac{n(n+1)}{2}$

$$\frac{n(n+1)}{2} = 300 \implies n(n+1) = 600$$

Testing $n = 24$: $24 \times 25 = 600$ ✓

Therefore $n =$ **24**.

Answer: (A) Go Back to Q 5

Q6.

Solution

Topic: Ratio / Map Scale

Scale $= 1 : 50000$ means 1 cm on map $= 50000$ cm on ground.

Map distance $= 6$ cm

$$\text{Actual distance} = 6 \times 50000 \text{ cm} = 300000 \text{ cm} = 3000 \text{ m} = \textbf{3 km}$$

Answer: (B) Go Back to Q 6

Q7.

Solution

Topic: Partnership / Unequal Time

Profit is shared in proportion to (capital $\times$ time):

$$\text{A's share} = 12000 \times 4 = 48000$$
$$\text{B's share} = 8000 \times 6 = 48000$$
$$\text{C's share} = 6000 \times 12 = 72000$$

Ratio $= 48000 : 48000 : 72000 = 2 : 2 : 3$

Total parts $= 7$. C's profit:

$$\text{C's share} = \frac{3}{7} \times 3500 = \textbf{Rs. 1500}$$

Answer: (D) Go Back to Q 7

Q8.

Solution

Topic: Profit & Loss / Successive Discounts

Marked Price $=$ Rs. 5000
After first discount of 30%: $5000 \times 0.70 = 3500$
After second discount of 10%: $3500 \times 0.90 =$ **Rs. 3150**

Alternatively, combined discount factor $= 0.70 \times 0.90 = 0.63$:

$$\text{SP} = 5000 \times 0.63 = \textbf{Rs. 3150}$$

Answer: (C) Go Back to Q 8

Q9.

Solution

Topic: Profit & Loss / Break-even

Cost Price $= 1200 + 300 =$ Rs. 1500 (including transportation)

Required profit $= 25\%$

$$\text{SP} = 1500 \times 1.25 = \textbf{Rs. 1875}$$

Answer: (A) Go Back to Q 9

Q10.

Solution

Topic: Time, Speed & Distance / Escalator

Ramu takes 20 steps to reach the top at 1 step per second.
Time taken $= 20 \div 1 = 20$ seconds.

In 20 seconds, the escalator moves: $2 \times 20 = 40$ steps.

Total visible steps on stationary escalator $= 20 + 40 =$ **60**

Answer: (B) Go Back to Q 10

Q11.

Solution

Topic: Time, Speed & Distance / Circular Track

Both cyclists move in the *same direction*.

Relative speed of faster cyclist w.r.t. slower $= 12 - 8 = 4$ m/s.

The faster cyclist laps the slower one when he has covered one full extra lap:

$$\text{Time} = \frac{\text{Track length}}{\text{Relative speed}} = \frac{1200}{4} = \textbf{300 seconds}$$

Answer: (D) Go Back to Q 11

Q12.

Solution

Topic: Algebra / Work Rate

A's rate $= \frac{1}{10}$ job/day; B's rate $= \frac{1}{15}$ job/day.

Combined rate:

$$\frac{1}{10} + \frac{1}{15} = \frac{3}{30} + \frac{2}{30} = \frac{5}{30} = \frac{1}{6}$$

Time taken together $=$ **6 days**.

Answer: (C) Go Back to Q 12

Q13.

Solution

Topic: Geometry / Sphere

Radius $r = 7$ cm; $\pi = \frac{22}{7}$

Total Surface Area of sphere:

$$\text{SA} = 4\pi r^2 = 4 \times \frac{22}{7} \times 7^2 = 4 \times \frac{22}{7} \times 49 = 4 \times 22 \times 7 = \textbf{616 cm}^2$$

Answer: (A) Go Back to Q 13

Q14.

Solution

Topic: Geometry / Triangle Angles

Sum of interior angles of a triangle $= 180$.

$$\angle C = 180 - 50 - 70 = 60$$

The exterior angle at vertex C is the supplement of $\angle C$:

$$\text{Exterior angle at } C = 180 - 60 = \mathbf{120°}$$

Alternatively: Exterior angle $= \angle A + \angle B = 50 + 70 = 120$.

Answer: (B) Go Back to Q 14

Q15.

Solution

Topic: Data Interpretation / Percentage Growth

Calculate year-on-year percentage growth:

$$2022: \quad \frac{96-80}{80} \times 100 = \frac{16}{80} \times 100 = 20\%$$

$$2023: \quad \frac{120-96}{96} \times 100 = \frac{24}{96} \times 100 = 25\%$$

$$2024: \quad \frac{156-120}{120} \times 100 = \frac{36}{120} \times 100 = 30\%$$

Highest percentage growth $= 30\%$ in **2024**.

Answer: (D) Go Back to Q 15

Q16.

Solution

Topic: Probability / Combinations

Select 3 men from 5 and 2 women from 4:

$$\binom{5}{3} \times \binom{4}{2} = \frac{5!}{3!\,2!} \times \frac{4!}{2!\,2!} = 10 \times 6 = \mathbf{60}$$

Answer: (C) Go Back to Q 16

Answer Key

Quick Reference Answer Key

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

Click any answer in the table to jump directly to its solution.