

Symbiosis Entrance Test (SET)

Quantitative Aptitude — Sample Paper 6

Total Questions:	16	Maximum Marks:	16
Duration:	16 minutes	Marking Scheme:	+1 per correct answer, no negative marking
Mode:	Online CBT		

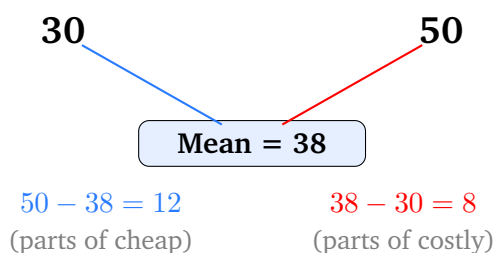
Instructions

1. This paper contains **16 multiple-choice questions** carrying **1 mark each**.
2. Each question has **four options** (A)–(D). Choose the single best answer.
3. There is **no negative marking** for wrong answers.
4. Attempt all questions within the stipulated time of **16 minutes**.
5. Syllabus: Arithmetic, Algebra, Geometry, Data Interpretation, and Probability — class 9–10 level, as tested in SET (Symbiosis Entrance Test).

SECTION: Quantitative Aptitude (16 Questions × 1 Mark)

- Q1.** The price of a laptop (before tax) is Rs. 40 000. A sales tax of 12% is levied on it. What is the total purchase price?
- (A) Rs. 42 000
(B) Rs. 44 800
(C) Rs. 46 000
(D) Rs. 48 000
- Q2.** The mean of 6 numbers is 30. One of the numbers, which is 18, is removed. What is the new mean of the remaining 5 numbers?
- (A) 28.0
(B) 30.5
(C) 32.4
(D) 34.0

- Q3.** A machine costs Rs. 50 000. Its value depreciates at 20% per year. What will be its value after 2 years?
- (A) Rs. 28 000
(B) Rs. 30 000
(C) Rs. 31 000
(D) Rs. 32 000
- Q4.** Three bells ring at intervals of 4 minutes, 6 minutes, and 9 minutes respectively. If all three ring together at 8:00 AM, when will they next all ring together?
- (A) 8:36 AM
(B) 8:24 AM
(C) 8:48 AM
(D) 9:00 AM
- Q5.** What is the value of $(64)^{2/3}$?
- (A) 8
(B) 16
(C) 32
(D) 64
- Q6.** A shopkeeper mixes two varieties of rice costing Rs. 30/kg and Rs. 50/kg to produce a 40 kg mixture costing Rs. 38/kg. How many kg of the cheaper variety is used?



- (A) 16 kg
(B) 20 kg
(C) 24 kg



(D) 28 kg

Q7. A invests Rs. 10 000 for the full year and B invests Rs. 15 000 for only 8 months in a business. If the total profit at the end of the year is Rs. 10 000, what is B's share?

(A) Rs. 3000

(B) Rs. 4000

(C) Rs. 4500

(D) Rs. 5000

Q8. An article has a marked price of Rs. 600. A discount of 25% is offered. What is the selling price?

(A) Rs. 450

(B) Rs. 480

(C) Rs. 500

(D) Rs. 540

Q9. A trader bought 200 pens at Rs. 5 each and sold all of them at Rs. 4 per pen. What is his total loss?

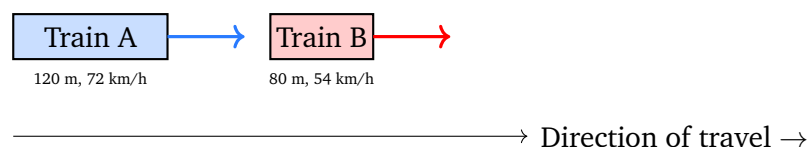
(A) Rs. 150

(B) Rs. 200

(C) Rs. 250

(D) Rs. 300

Q10. Train A is 120 m long and travels at 72 km/h. Train B is 80 m long and travels at 54 km/h in the **same direction**. How long (in seconds) will Train A take to completely pass Train B?



(A) 25 seconds

(B) 30 seconds



- (C) 40 seconds
- (D) 50 seconds

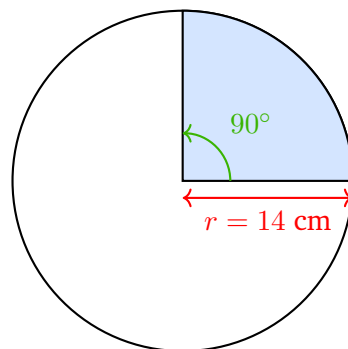
Q11. X and Y start from the same point and walk in opposite directions. X walks at 5 km/h and Y at 3 km/h. After how many hours will they be 40 km apart?

- (A) 2.5 hours
- (B) 3 hours
- (C) 4 hours
- (D) 5 hours

Q12. If $x + \frac{1}{x} = 3$, find the value of $x^2 + \frac{1}{x^2}$.

- (A) 7
- (B) 9
- (C) 11
- (D) 13

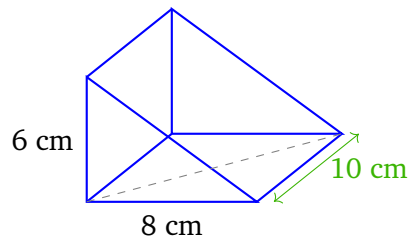
Q13. A sector of a circle has radius 14 cm and the angle at the centre is 90° . Find the area of the sector. (Use $\pi = 22/7$)



- (A) 132 cm^2
- (B) 154 cm^2
- (C) 176 cm^2
- (D) 198 cm^2

Q14. A triangular prism has a right-triangle base with legs 6 cm and 8 cm. The length (height) of the prism is 10 cm. Find its volume.





- (A) 180 cm^3
- (B) 210 cm^3
- (C) 240 cm^3
- (D) 280 cm^3

Q15. The table shows the quarterly profits (in Rs. lakh) of companies A and B. In which quarter was the combined profit of both companies the **highest**?

Quarter	Company A	Company B
Q1	25	20
Q2	30	25
Q3	20	30
Q4	40	35

- (A) Q1
- (B) Q2
- (C) Q3
- (D) Q4

Q16. In how many different ways can 4 students be arranged in a row for a photograph?

- (A) 24
- (B) 12
- (C) 36
- (D) 48



DETAILED SOLUTIONS

Sol. 1.

Solution

Topic: Percentages / Sales Tax

$$\begin{aligned}\text{Total purchase price} &= \text{Original price} \times (1 + \text{tax rate}) \\ &= 40000 \times 1.12 = \text{Rs. } 44,800.\end{aligned}$$

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

Sol. 2.

Solution

Topic: Averages / Removal of an Item

$$\begin{aligned}\text{Total of 6 numbers} &= 6 \times 30 = 180. \\ \text{After removing 18: new total} &= 180 - 18 = 162. \\ \text{New mean} &= \frac{162}{5} = 32.4.\end{aligned}$$

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

Sol. 3.

Solution

Topic: Percentages / Depreciation

$$\begin{aligned}\text{Value after 1 year} &= 50000 \times 0.80 = 40000. \\ \text{Value after 2 years} &= 40000 \times 0.80 = \text{Rs. } 32,000.\end{aligned}$$

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

Sol. 4.

Solution

Topic: Number System / LCM

$$\begin{aligned}\text{LCM}(4, 6, 9): \text{LCM}(4, 6) &= 12; \quad \text{LCM}(12, 9) = 36 \text{ minutes.} \\ \text{All three bells ring together every } &36 \text{ minutes.} \\ 8:00 \text{ AM} + 36 \text{ min} &= 8:36 \text{ AM.}\end{aligned}$$

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

Sol. 5.



Solution**Topic: Number System / Indices**

$$(64)^{2/3} = (4^3)^{2/3} = 4^{3 \times 2/3} = 4^2 = 16.$$

Alternatively: cube root of 64 = 4; square of 4 = 16.

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

Sol. 6.

Solution**Topic: Ratio / Alligation**

By the alligation rule, the ratio in which the two varieties are mixed equals:

$$(\text{Costly} - \text{Mean}) : (\text{Mean} - \text{Cheap}) = (50 - 38) : (38 - 30) = 12 : 8 = 3 : 2.$$

$$\text{Total parts} = 5. \quad \text{Cheaper variety} = \frac{3}{5} \times 40 = 24 \text{ kg.}$$

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

Sol. 7.

Solution**Topic: Partnership**

Effective investments:

$$\text{A: } 10000 \times 12 = 1,20,000$$

$$\text{B: } 15000 \times 8 = 1,20,000$$

Ratio = 1 : 1. Total parts = 2.

$$\text{B's share} = \frac{1}{2} \times 10000 = \text{Rs. 5000.}$$

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

Sol. 8.

Solution**Topic: Profit and Loss / Discount**

$$\text{SP} = \text{Marked Price} \times (1 - \text{discount\%/100})$$

$$= 600 \times (1 - 0.25) = 600 \times 0.75 = \text{Rs. 450.}$$

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

Sol. 9.



Solution**Topic: Profit and Loss / Loss Calculation**

$$\text{Total cost (CP)} = 200 \times 5 = \text{Rs. } 1000.$$

$$\text{Total revenue (SP)} = 200 \times 4 = \text{Rs. } 800.$$

$$\text{Loss} = 1000 - 800 = \text{Rs. } 200.$$

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

Sol. 10.

Solution**Topic: Time, Speed and Distance / Trains (Same Direction)**

$$\text{Relative speed} = 72 - 54 = 18 \text{ km/h} = 18 \times \frac{1000}{3600} = 5 \text{ m/s.}$$

$$\text{Total distance to be covered} = 120 + 80 = 200 \text{ m.}$$

$$\text{Time} = \frac{200}{5} = 40 \text{ seconds.}$$

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

Sol. 11.

Solution**Topic: Time, Speed and Distance / Opposite Directions**

Since X and Y move in opposite directions, they separate at a combined rate of:
 $5 + 3 = 8 \text{ km/h.}$

$$\text{Time to be 40 km apart} = \frac{40}{8} = 5 \text{ hours.}$$

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

Sol. 12.

Solution**Topic: Algebra / Sum and Product Identity**

Squaring both sides of $x + \frac{1}{x} = 3$:

$$\left(x + \frac{1}{x}\right)^2 = x^2 + 2 + \frac{1}{x^2} = 9$$

$$x^2 + \frac{1}{x^2} = 9 - 2 = 7.$$

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

Sol. 13.

Solution**Topic: Mensuration / Circle Sector**

$$\begin{aligned}\text{Area of sector} &= \frac{\theta}{360} \times \pi r^2 \\ &= \frac{90}{360} \times \frac{22}{7} \times 14^2 = \frac{1}{4} \times \frac{22}{7} \times 196 = \frac{1}{4} \times 22 \times 28 = \frac{1}{4} \times 616 = 154 \text{ cm}^2.\end{aligned}$$

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

Sol. 14.

Solution**Topic: Mensuration / Volume of Prism**

$$\text{Area of triangular base} = \frac{1}{2} \times 6 \times 8 = 24 \text{ cm}^2 \text{ (right triangle).}$$

$$\text{Volume} = \text{Base area} \times \text{Length} = 24 \times 10 = 240 \text{ cm}^3.$$

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

Sol. 15.

Solution**Topic: Data Interpretation / Table**

Quarter	Company A	Company B	Combined
Q1	25	20	45
Q2	30	25	55
Q3	20	30	50
Q4	40	35	75

The combined profit is highest in **Q4** at Rs. 75 lakh.**Answer: (D)** [Go Back to Q 15](#)

Sol. 16.

Solution**Topic: Counting / Permutations**The number of ways to arrange n distinct objects in a row = $n!$

$$4! = 4 \times 3 \times 2 \times 1 = 24.$$

Answer: (A) [Go Back to Q 16](#)**ANSWER KEY**

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

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