

XAT Quantitative Ability & DI

Sample Paper – 1

Duration: 64 Minutes

Maximum Marks: 28

Instructions

- This paper contains **28** Multiple Choice Questions (Single Correct Answer), modelled on the Quantitative Ability & Data Interpretation section of **XAT** (Xavier Aptitude Test), conducted by XLRI.
- Each correct answer carries **+1 mark**, with **0.25 marks deducted** for every incorrect answer. (In the actual XAT you may leave up to **8** questions across Part 1 unattempted without penalty; thereafter each blank costs **0.10** marks.)
- **Section A** has **20** standalone Quantitative Ability questions; **Section B** has **two Data Interpretation sets** of four questions each.
- **No calculator is allowed** in XAT; do all working by hand. Attempt this practice paper in one timed sitting of about **64 minutes**.
- Use of mobile phones and electronic gadgets is strictly prohibited.

Section A: Quantitative Ability

- Q1.** A shopkeeper marks his goods 40% above cost price and then allows a discount of 25% on the marked price. His profit percent is:
- (A) 10%
- (B) 15%
- (C) 5%
- (D) 7.5%
- Q2.** A man sells two articles at Rs 990 each. On one he gains 10% and on the other he loses 10%. Overall he makes:
- (A) a loss of 1%



- (B) a gain of 1%
- (C) no profit and no loss
- (D) a loss of 2%

Q3. A train 180 m long crosses a platform 270 m long in 30 seconds. The speed of the train is:

- (A) 54 km/h
- (B) 45 km/h
- (C) 60 km/h
- (D) 50 km/h

Q4. A can finish a piece of work in 12 days and B in 18 days. Working together, they will finish it in:

- (A) 6 days
- (B) 9 days
- (C) 15 days
- (D) 7.2 days

Q5. The average of 11 numbers is 30. The average of the first six is 28 and that of the last six is 33. The sixth number is:

- (A) 30
- (B) 33
- (C) 36
- (D) 28

Q6. A 40-litre mixture contains milk and water in the ratio 3 : 1. How much water must be added so that the ratio becomes 3 : 2?

- (A) 5 litres
- (B) 10 litres
- (C) 15 litres



(D) 8 litres

Q7. The difference between the compound interest and the simple interest on a sum for 2 years at 10% per annum is Rs 50. The sum is:

(A) Rs 2500

(B) Rs 5000

(C) Rs 10000

(D) Rs 4000

Q8. If $x + \frac{1}{x} = 4$, then $x^2 + \frac{1}{x^2}$ equals:

(A) 16

(B) 18

(C) 12

(D) 14

Q9. The sum of the first 20 terms of the arithmetic progression 3, 7, 11, ... is:

(A) 780

(B) 800

(C) 840

(D) 820

Q10. The roots of the equation $x^2 - 5x + 6 = 0$ are:

(A) 2 and 3

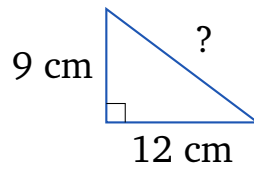
(B) 1 and 6

(C) -2 and -3

(D) 2 and -3

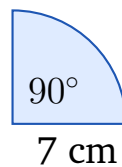
Q11. In the right-angled triangle shown, the two legs measure 9 cm and 12 cm. The length of the hypotenuse is:





- (A) 15 cm
- (B) 21 cm
- (C) 18 cm
- (D) 13 cm

Q12. A sector of a circle of radius 7 cm subtends an angle of 90° at the centre. Its area is (take $\pi = \frac{22}{7}$):



- (A) 77 cm^2
- (B) 49 cm^2
- (C) 38.5 cm^2
- (D) 154 cm^2

Q13. The volume of a cube is 216 cm^3 . Its total surface area is:

- (A) 144 cm^2
- (B) 216 cm^2
- (C) 288 cm^2
- (D) 196 cm^2

Q14. The remainder when 2^{100} is divided by 7 is:

- (A) 2
- (B) 4
- (C) 1
- (D) 6



Q15. The number of positive factors of 360 is:

- (A) 12
- (B) 18
- (C) 20
- (D) 24

Q16. The number of distinct arrangements of all the letters of the word **LEADER** is:

- (A) 360
- (B) 720
- (C) 180
- (D) 120

Q17. Two fair dice are thrown together. The probability that the sum of the numbers shown is 9 is:

- (A) $\frac{1}{6}$
- (B) $\frac{1}{12}$
- (C) $\frac{1}{9}$
- (D) $\frac{1}{18}$

Q18. If $\log_2 x = 5$, then x equals:

- (A) 10
- (B) 32
- (C) 25
- (D) 64

Q19. A 's salary is 25% more than B 's salary. By what percent is B 's salary less than A 's?

- (A) 25%



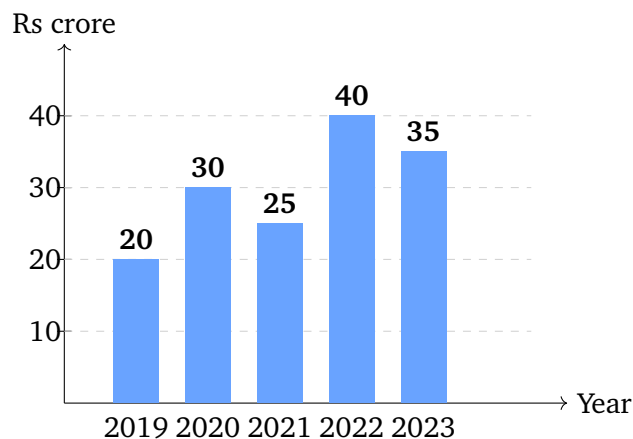
- (B) 15%
- (C) 20%
- (D) 18%

Q20. If $3x - 7 < 2x + 5$, then:

- (A) $x > 12$
- (B) $x < 5$
- (C) $x > 5$
- (D) $x < 12$

Section B: Data Interpretation – Set I

Directions (Q21–Q24): The bar chart shows the annual revenue (in Rs crore) of a company from 2019 to 2023. Study it and answer the questions.



Q21. What is the total revenue of the company over the five years (in Rs crore)?

- (A) 150
- (B) 140
- (C) 160
- (D) 145

Q22. The revenue in 2022 is what percent more than the revenue in 2021?

- (A) 40%



- (B) 60%
- (C) 50%
- (D) 37.5%

Q23. What is the average annual revenue over the five years (in Rs crore)?

- (A) 25
- (B) 35
- (C) 28
- (D) 30

Q24. In which year was the revenue exactly equal to the five-year average?

- (A) 2019
- (B) 2021
- (C) 2020
- (D) 2023

Section B: Data Interpretation – Set II

Directions (Q25–Q28): The table shows the number of units sold by four salespersons in January and February. Study it and answer the questions.

Salesperson	January	February	Total
P	50	60	110
Q	40	80	120
R	70	55	125
S	60	40	100

Q25. What is the total number of units sold by all four salespersons over the two months?

- (A) 420
- (B) 430
- (C) 440
- (D) 455



- Q26.** Which salesperson sold the highest number of units over the two months taken together?
- (A) P
 - (B) Q
 - (C) R
 - (D) S
- Q27.** By how many units did the total February sales exceed the total January sales?
- (A) 10
 - (B) 15
 - (C) 20
 - (D) 25
- Q28.** What is the ratio of P's two-month total to S's two-month total?
- (A) 10 : 11
 - (B) 11 : 10
 - (C) 1 : 1
 - (D) 6 : 5



Detailed Solutions

Q1.

Solution

Concept – successive markup and discount.**Step 1:** Let CP = 100. Marked price = $100 + 40\% = 140$.**Step 2:** Selling price = $140 \times (1 - 0.25) = 140 \times 0.75 = 105$.**Step 3:** Profit = $105 - 100 = 5$, so profit percent = 5%.**Why the others are wrong:** A/B/D come from forgetting the discount or subtracting 25% from 40%; the correct chained value is 5%.**Final Answer:** **Answer:** (C) [Go Back to Q1](#)

Q2.

Solution

Concept – equal SP, equal opposite %: always a loss.**Step 1:** CP of the gaining article = $\frac{990}{1.1} = 900$; CP of the losing one = $\frac{990}{0.9} = 1100$.**Step 2:** Total CP = 2000, total SP = 1980, loss = 20.**Step 3:** Loss percent = $\frac{20}{2000} \times 100 = 1\%$ (matches the shortcut $\frac{10^2}{100}\% = 1\%$ loss).**Why the others are wrong:** There is always a net loss here, so B and C fail; the loss is 1%, not 2%.**Final Answer:** **Answer:** (A) [Go Back to Q2](#)

Q3.

Solution

Concept – crossing a platform covers (train + platform) length.**Step 1:** Distance = $180 + 270 = 450$ m in 30 s.**Step 2:** Speed = $\frac{450}{30} = 15$ m/s.**Step 3:** $15 \times \frac{18}{5} = 54$ km/h.**Why the others are wrong:** B/C/D use a wrong distance or a wrong m/s-to-km/h factor.

Final Answer:

Answer: (A) [Go Back to Q3](#)

Q4.

Solution

Concept – combined one-day work.

Step 1: $\frac{1}{12} + \frac{1}{18} = \frac{3+2}{36} = \frac{5}{36}$ per day.

Step 2: Time = $\frac{36}{5} = 7.2$ days.

Why the others are wrong: 6 and 9 ignore the correct LCM combination; 15 adds the times.

Final Answer:

Answer: (D) [Go Back to Q4](#)

Q5.

Solution

Concept – overlap in averages.

Step 1: Sum of all 11 = $11 \times 30 = 330$.

Step 2: Sum of first six = 168; sum of last six = 198; their sum = 366.

Step 3: The sixth number is counted in both, so it = $366 - 330 = 36$.

Why the others are wrong: 30/33/28 ignore the double-counted sixth term.

Final Answer:

Answer: (C) [Go Back to Q5](#)

Q6.

Solution

Concept – only water changes; milk stays fixed.

Step 1: Milk = $\frac{3}{4} \times 40 = 30$, water = 10.

Step 2: For 3 : 2 with milk = 30: water = $30 \times \frac{2}{3} = 20$.

Step 3: Water to add = $20 - 10 = 10$ litres.

Why the others are wrong: 5/15/8 come from changing milk or mis-setting the



target ratio.

Final Answer:

Answer: (B) [Go Back to Q6](#)

Q7.

Solution

Concept – for 2 years, CI – SI = $P \left(\frac{r}{100} \right)^2$.

Step 1: $P \times (0.1)^2 = 0.01P = 50$.

Step 2: $P = \frac{50}{0.01} = 5000$.

Why the others are wrong: 2500/10000/4000 do not satisfy $0.01P = 50$.

Final Answer:

Answer: (B) [Go Back to Q7](#)

Q8.

Solution

Concept – square the given expression.

Step 1: $\left(x + \frac{1}{x} \right)^2 = x^2 + \frac{1}{x^2} + 2 = 16$.

Step 2: $x^2 + \frac{1}{x^2} = 16 - 2 = 14$.

Why the others are wrong: 16 forgets the -2 ; 18 adds instead of subtracting; 12 mis-squares.

Final Answer:

Answer: (D) [Go Back to Q8](#)

Q9.

Solution

Concept – AP sum $S_n = \frac{n}{2} [2a + (n - 1)d]$.

Step 1: $a = 3, d = 4, n = 20$.

Step 2: $S_{20} = 10 [6 + 19 \times 4] = 10 [6 + 76] = 10 \times 82 = 820$.

Why the others are wrong: 780/800/840 use a wrong $n - 1$ or d .

Final Answer:



Answer: (D) [Go Back to Q9](#)

Q10.

Solution

Concept – factor the quadratic.

Step 1: $x^2 - 5x + 6 = (x - 2)(x - 3)$.

Step 2: Roots are $x = 2$ and $x = 3$ (both positive, product 6, sum 5).

Why the others are wrong: B has the wrong product; C/D have wrong signs.

Final Answer:

Answer: (A) [Go Back to Q10](#)

Q11.

Solution

Concept – Pythagoras theorem.

Step 1: Hypotenuse = $\sqrt{9^2 + 12^2} = \sqrt{81 + 144}$.

Step 2: = $\sqrt{225} = 15$ cm (a 3-4-5 triangle scaled by 3).

Why the others are wrong: 21 adds the legs; 18 and 13 do not satisfy Pythagoras.

Final Answer:

Answer: (A) [Go Back to Q11](#)

Q12.

Solution

Concept – sector area = $\frac{\theta}{360} \pi r^2$.

Step 1: $\frac{90}{360} = \frac{1}{4}$; $\pi r^2 = \frac{22}{7} \times 49 = 154$.

Step 2: Area = $\frac{1}{4} \times 154 = 38.5 \text{ cm}^2$.

Why the others are wrong: 154 is the full circle; 77 is a semicircle; 49 is r^2 .

Final Answer:

Answer: (C) [Go Back to Q12](#)



Q13.

Solution

Concept – cube: $\text{volume} = a^3$, $\text{TSA} = 6a^2$.

Step 1: $a^3 = 216 \Rightarrow a = 6 \text{ cm}$.

Step 2: $\text{TSA} = 6 \times 6^2 = 6 \times 36 = 216 \text{ cm}^2$.

Why the others are wrong: 144/288/196 use a wrong side or wrong face count.

Final Answer:

Answer: (B) [Go Back to Q13](#)

Q14.

Solution

Concept – cyclicity of $2^n \pmod{7}$.

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

Step 2: $2^{100} = 2^{99} \cdot 2 = (2^3)^{33} \cdot 2 \equiv 1^{33} \cdot 2 = 2 \pmod{7}$.

Why the others are wrong: 4/1/6 correspond to other exponents in the cycle 2, 4, 1, ...

Final Answer:

Answer: (A) [Go Back to Q14](#)

Q15.

Solution

Concept – number of factors from prime factorisation.

Step 1: $360 = 2^3 \times 3^2 \times 5^1$.

Step 2: Number of factors $= (3 + 1)(2 + 1)(1 + 1) = 4 \times 3 \times 2 = 24$.

Why the others are wrong: 12/18/20 drop a prime power or mis-add an exponent.

Final Answer:

Answer: (D) [Go Back to Q15](#)



Q16.

Solution**Concept – arrangements with a repeated letter.****Step 1:** LEADER has 6 letters with E repeated twice.**Step 2:** Arrangements = $\frac{6!}{2!} = \frac{720}{2} = 360$.**Why the others are wrong:** 720 ignores the repeat; 180/120 over-divide.**Final Answer:** **Answer: (A)** [Go Back to Q16](#)

Q17.

Solution**Concept – favourable outcomes over 36.****Step 1:** Sum 9: (3, 6), (4, 5), (5, 4), (6, 3) = 4 ways.**Step 2:** Probability = $\frac{4}{36} = \frac{1}{9}$.**Why the others are wrong:** $\frac{1}{6}, \frac{1}{12}, \frac{1}{18}$ miscount the favourable pairs.**Final Answer:** **Answer: (C)** [Go Back to Q17](#)

Q18.

Solution**Concept – definition of a logarithm.****Step 1:** $\log_2 x = 5 \Rightarrow x = 2^5$.**Step 2:** $x = 32$.**Why the others are wrong:** 10/25/64 come from wrong bases or exponents.**Final Answer:** **Answer: (B)** [Go Back to Q18](#)

Q19.

Solution**Concept – the base changes when comparing the other way.****Step 1:** Let $B = 100$, so $A = 125$.**Step 2:** B is less than A by $\frac{125 - 100}{125} \times 100 = \frac{25}{125} \times 100 = 20\%$.**Why the others are wrong:** 25% keeps the wrong base; 15/18 mis-divide.**Final Answer:** **Answer: (C)** [Go Back to Q19](#)

Q20.

Solution**Concept – solve the linear inequality.****Step 1:** $3x - 7 < 2x + 5 \Rightarrow 3x - 2x < 5 + 7$.**Step 2:** $x < 12$.**Why the others are wrong:** the inequality direction and constant give $x < 12$, not the others.**Final Answer:** **Answer: (D)** [Go Back to Q20](#)

Q21.

Solution**Concept – add the bar heights.****Step 1:** $20 + 30 + 25 + 40 + 35$.**Step 2:** = 150 Rs crore.**Why the others are wrong:** 140/160/145 drop or mis-add a year's bar.**Final Answer:** **Answer: (A)** [Go Back to Q21](#)

Q22.

Solution**Concept – percent increase over the earlier year.****Step 1:** 2022 = 40, 2021 = 25; increase = 15.**Step 2:** $\frac{15}{25} \times 100 = 60\%$.**Why the others are wrong:** 37.5% divides by 40; 40/50 use wrong figures.**Final Answer:** **Answer:** (B) [Go Back to Q22](#)

Q23.

Solution**Concept – average = total ÷ count.****Step 1:** Total = 150 (from Q21), count = 5.**Step 2:** Average = $\frac{150}{5} = 30$ Rs crore.**Why the others are wrong:** 25/35/28 do not equal $150 \div 5$.**Final Answer:** **Answer:** (D) [Go Back to Q23](#)

Q24.

Solution**Concept – match a year to the average of 30.****Step 1:** The five values are 20, 30, 25, 40, 35; the average is 30.**Step 2:** The year with revenue exactly 30 is **2020**.**Why the others are wrong:** 2019/2021/2023 read 20, 25, 35, none equal to 30.**Final Answer:** **Answer:** (C) [Go Back to Q24](#)

Q25.

Solution

Concept – add the “Total” column.

Step 1: $110 + 120 + 125 + 100$.

Step 2: $= 455$ units.

Why the others are wrong: 420/430/440 drop part of a salesperson’s total.

Final Answer:

Answer: (D) [Go Back to Q25](#)

Q26.

Solution

Concept – compare the totals.

Step 1: Totals: $P = 110$, $Q = 120$, $R = 125$, $S = 100$.

Step 2: The largest is 125, which is **R**.

Why the others are wrong: P, Q and S all total less than R’s 125.

Final Answer:

Answer: (C) [Go Back to Q26](#)

Q27.

Solution

Concept – column sums for each month.

Step 1: January $= 50 + 40 + 70 + 60 = 220$; February $= 60 + 80 + 55 + 40 = 235$.

Step 2: Difference $= 235 - 220 = 15$ units.

Why the others are wrong: 10/20/25 come from a mis-added column.

Final Answer:

Answer: (B) [Go Back to Q27](#)



Q28.

Solution**Concept – form and reduce the ratio.****Step 1:** P's total = 110, S's total = 100.**Step 2:** $110 : 100 = 11 : 10$.**Why the others are wrong:** $10 : 11$ reverses it; $1 : 1$ and $6 : 5$ do not match $110 : 100$.**Final Answer:** [Go Back to Q28](#)

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	A	3	A	4	D	5	C
6	B	7	B	8	D	9	D	10	A
11	A	12	C	13	B	14	A	15	D
16	A	17	C	18	B	19	C	20	D
21	A	22	B	23	D	24	C	25	D
26	C	27	B	28	B				

