

XAT Quantitative Ability & DI

Sample Paper – 4

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 50% above cost price and then allows a discount of 20% on the marked price. His profit percent is:
- (A) 10%
- (B) 25%
- (C) 20%
- (D) 30%
- Q2.** A man sells two articles at Rs. 1200 each. On one he gains 20% and on the other he loses 20%. Overall he makes:
- (A) a gain of 4%



- (B) no profit and no loss
- (C) a loss of 2%
- (D) a loss of 4%

Q3. A train 240 m long crosses a platform 360 m long in 30 seconds. The speed of the train is:

- (A) 54 km/h
- (B) 72 km/h
- (C) 60 km/h
- (D) 80 km/h

Q4. A can finish a piece of work in 15 days and B in 10 days. Working together, they will finish it in:

- (A) 12.5 days
- (B) 25 days
- (C) 5 days
- (D) 6 days

Q5. The average of 13 numbers is 40. The average of the first seven is 42 and that of the last seven is 39. The seventh number is:

- (A) 40
- (B) 42
- (C) 45
- (D) 47

Q6. A 60-litre mixture contains milk and water in the ratio 5 : 1. How much water must be added so that the ratio becomes 5 : 3?

- (A) 10 litres
- (B) 15 litres
- (C) 20 litres



(D) 25 litres

Q7. The difference between the compound interest and the simple interest on a sum for 2 years at 8% per annum is Rs. 128. The sum is:

(A) Rs. 16000

(B) Rs. 12500

(C) Rs. 25000

(D) Rs. 20000

Q8. If $x + \frac{1}{x} = 5$, then $x^2 + \frac{1}{x^2}$ equals:

(A) 25

(B) 27

(C) 23

(D) 21

Q9. The sum of the first 20 terms of the arithmetic progression 5, 9, 13, ... is:

(A) 820

(B) 800

(C) 840

(D) 860

Q10. The roots of the equation $x^2 - 7x + 12 = 0$ are:

(A) 2 and 6

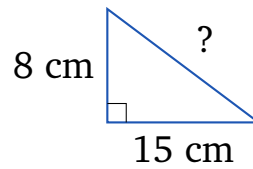
(B) 3 and 4

(C) -3 and -4

(D) 3 and -4

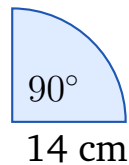
Q11. In the right-angled triangle shown, the two legs measure 8 cm and 15 cm. The length of the hypotenuse is:





- (A) 23 cm
- (B) 21 cm
- (C) 19 cm
- (D) 17 cm

Q12. A sector of a circle of radius 14 cm subtends an angle of 90° at the centre. Its area is (take $\pi = \frac{22}{7}$):



- (A) 154 cm^2
- (B) 196 cm^2
- (C) 308 cm^2
- (D) 77 cm^2

Q13. The volume of a cube is 343 cm^3 . Its total surface area is:

- (A) 196 cm^2
- (B) 294 cm^2
- (C) 343 cm^2
- (D) 252 cm^2

Q14. The remainder when 3^{100} is divided by 5 is:

- (A) 1
- (B) 3
- (C) 4
- (D) 2



Q15. The number of positive factors of 540 is:

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

Q16. The number of distinct arrangements of all the letters of the word **BAL-LOON** is:

- (A) 5040
- (B) 2520
- (C) 1260
- (D) 630

Q17. Two fair dice are thrown together. The probability that the sum of the numbers shown is 8 is:

- (A) $\frac{1}{6}$
- (B) $\frac{1}{9}$
- (C) $\frac{5}{36}$
- (D) $\frac{1}{12}$

Q18. If $\log_3 x = 4$, then x equals:

- (A) 81
- (B) 64
- (C) 12
- (D) 27

Q19. A 's salary is 60% more than B 's salary. By what percent is B 's salary less than A 's?

- (A) 60%



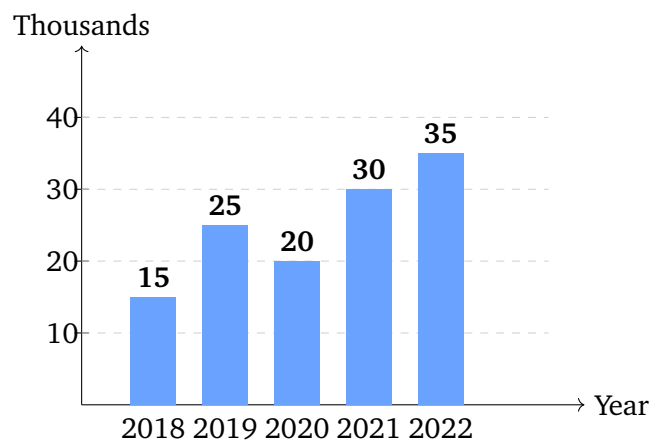
- (B) 37.5%
- (C) 40%
- (D) 62.5%

Q20. If $5x - 9 < 3x + 7$, then:

- (A) $x > 8$
- (B) $x < 4$
- (C) $x < 8$
- (D) $x > 4$

Section B: Data Interpretation – Set I

Directions (Q21–Q24): The bar chart shows the number of laptops sold (in thousands) by an electronics store from 2018 to 2022. Study it and answer the questions.



- Q21.** What is the total number of laptops sold by the store over the five years (in thousands)?
- (A) 120
 - (B) 125
 - (C) 130
 - (D) 115
- Q22.** The sales in 2021 are what percent more than the sales in 2020?
- (A) 40%



- (B) 60%
- (C) 33.3%
- (D) 50%

Q23. What is the average annual sales over the five years (in thousands)?

- (A) 25
- (B) 30
- (C) 20
- (D) 28

Q24. In which year were the sales exactly equal to the five-year average?

- (A) 2018
- (B) 2020
- (C) 2019
- (D) 2022

Section B: Data Interpretation – Set II

Directions (Q25–Q28): The table shows the marks scored by four students in two class tests. Study it and answer the questions.

Student	Test 1	Test 2	Total
W	45	55	100
X	60	30	90
Y	50	70	120
Z	35	65	100

Q25. What is the total marks scored by all four students over the two tests?

- (A) 400
- (B) 410
- (C) 420
- (D) 430



- Q26.** Which student scored the highest total marks over the two tests taken together?
- (A) Y
 - (B) W
 - (C) X
 - (D) Z
- Q27.** By how many marks did the total Test 2 score exceed the total Test 1 score?
- (A) 25
 - (B) 30
 - (C) 35
 - (D) 20
- Q28.** What is the ratio of W's two-test total to X's two-test total?
- (A) 10 : 9
 - (B) 9 : 10
 - (C) 1 : 1
 - (D) 11 : 10



Detailed Solutions

Q1.

Solution

Concept – successive markup and discount.

Step 1: Let CP = 100. Marked price = $100 + 50\% = 150$.

Step 2: Selling price = $150 \times (1 - 0.20) = 150 \times 0.80 = 120$.

Step 3: Profit = $120 - 100 = 20$, so profit percent = 20%.

Why the others are wrong: A/B/D come from forgetting the discount or subtracting 20% from 50%; the correct chained value is 20%.

Final Answer: C

Answer: (C) [Go Back to Q1](#)

Q2.

Solution

Concept – equal SP, equal opposite %: always a loss.

Step 1: CP of the gaining article = $\frac{1200}{1.2} = 1000$; CP of the losing one = $\frac{1200}{0.8} = 1500$.

Step 2: Total CP = 2500, total SP = 2400, loss = 100.

Step 3: Loss percent = $\frac{100}{2500} \times 100 = 4\%$ (matches the shortcut $\frac{20^2}{100}\% = 4\%$ loss).

Why the others are wrong: There is always a net loss here, so A and B fail; the loss is 4%, not 2%.

Final Answer: D

Answer: (D) [Go Back to Q2](#)

Q3.

Solution

Concept – crossing a platform covers (train + platform) length.

Step 1: Distance = $240 + 360 = 600$ m in 30 s.

Step 2: Speed = $\frac{600}{30} = 20$ m/s.

Step 3: $20 \times \frac{18}{5} = 72$ km/h.

Why the others are wrong: A/C/D use a wrong distance or a wrong m/s-to-km/h



factor.

Final Answer:

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

Q4.

Solution

Concept – combined one-day work.

Step 1: $\frac{1}{15} + \frac{1}{10} = \frac{2+3}{30} = \frac{5}{30} = \frac{1}{6}$ per day.

Step 2: Time = $\frac{6}{1} = 6$ days.

Why the others are wrong: 12.5 and 25 ignore the correct LCM combination; 5 overstates the joint rate.

Final Answer:

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

Q5.

Solution

Concept – overlap in averages.

Step 1: Sum of all 13 = $13 \times 40 = 520$.

Step 2: Sum of first seven = $7 \times 42 = 294$; sum of last seven = $7 \times 39 = 273$; their sum = 567.

Step 3: The seventh number is counted in both, so it = $567 - 520 = 47$.

Why the others are wrong: 40/42/45 ignore the double-counted seventh term.

Final Answer:

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

Q6.

Solution

Concept – only water changes; milk stays fixed.

Step 1: Milk = $\frac{5}{6} \times 60 = 50$, water = 10.

Step 2: For 5 : 3 with milk = 50: water = $50 \times \frac{3}{5} = 30$.

Step 3: Water to add = $30 - 10 = 20$ litres.



Why the others are wrong: 10/15/25 come from changing milk or mis-setting the target ratio.

Final Answer: C

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

Q7.

Solution

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

Step 1: $P \times (0.08)^2 = 0.0064P = 128$.

Step 2: $P = \frac{128}{0.0064} = 20000$.

Why the others are wrong: 16000/12500/25000 do not satisfy $0.0064P = 128$.

Final Answer: D

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

Q8.

Solution

Concept – square the given expression.

Step 1: $\left(x + \frac{1}{x} \right)^2 = x^2 + \frac{1}{x^2} + 2 = 25$.

Step 2: $x^2 + \frac{1}{x^2} = 25 - 2 = 23$.

Why the others are wrong: 25 forgets the -2 ; 27 adds instead of subtracting; 21 mis-squares.

Final Answer: C

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

Q9.

Solution

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

Step 1: $a = 5, d = 4, n = 20$.

Step 2: $S_{20} = 10 [10 + 19 \times 4] = 10 [10 + 76] = 10 \times 86 = 860$.

Why the others are wrong: 820/800/840 use a wrong $n - 1$ or d .



Final Answer: D

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

Q10.

Solution

Concept – factor the quadratic.

Step 1: $x^2 - 7x + 12 = (x - 3)(x - 4)$.

Step 2: Roots are $x = 3$ and $x = 4$ (both positive, product 12, sum 7).

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

Final Answer: B

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

Q11.

Solution

Concept – Pythagoras theorem.

Step 1: Hypotenuse = $\sqrt{8^2 + 15^2} = \sqrt{64 + 225}$.

Step 2: = $\sqrt{289} = 17$ cm (an 8-15-17 Pythagorean triple).

Why the others are wrong: 23 adds the legs; 21 and 19 do not satisfy Pythagoras.

Final Answer: D

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

Q12.

Solution

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

Step 1: $\frac{90}{360} = \frac{1}{4}$; $\pi r^2 = \frac{22}{7} \times 14^2 = \frac{22}{7} \times 196 = 616$.

Step 2: Area = $\frac{1}{4} \times 616 = 154$ cm².

Why the others are wrong: 616 is the full circle; 308 is a semicircle; 196 is r^2 .

Final Answer: A

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



Q13.

Solution

Concept – cube: volume = a^3 , **TSA** = $6a^2$.

Step 1: $a^3 = 343 \Rightarrow a = 7$ cm.

Step 2: TSA = $6 \times 7^2 = 6 \times 49 = 294$ cm².

Why the others are wrong: 196/343/252 use a wrong side or wrong face count.

Final Answer:

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

Q14.

Solution

Concept – cyclicity of $3^n \pmod{5}$.

Step 1: $3^1 \equiv 3$, $3^2 \equiv 4$, $3^3 \equiv 2$, $3^4 \equiv 1 \pmod{5}$; the cycle length is 4.

Step 2: $100 = 4 \times 25$, so $3^{100} = (3^4)^{25} \equiv 1^{25} = 1 \pmod{5}$.

Why the others are wrong: 3/4/2 correspond to exponents $\equiv 1, 2, 3 \pmod{4}$, not 0.

Final Answer:

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

Q15.

Solution

Concept – number of factors from prime factorisation.

Step 1: $540 = 2^2 \times 3^3 \times 5^1$.

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

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

Final Answer:

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



Q16.

Solution**Concept – arrangements with repeated letters.****Step 1:** BALLOON has 7 letters with L repeated twice and O repeated twice.**Step 2:** Arrangements = $\frac{7!}{2!2!} = \frac{5040}{4} = 1260$.**Why the others are wrong:** 5040 ignores both repeats; 2520 divides by only one repeat; 630 over-divides.**Final Answer:** C**Answer:** (C) [Go Back to Q16](#)

Q17.

Solution**Concept – favourable outcomes over 36.****Step 1:** Sum 8: (2, 6), (3, 5), (4, 4), (5, 3), (6, 2) = 5 ways.**Step 2:** Probability = $\frac{5}{36}$.**Why the others are wrong:** $\frac{1}{6}, \frac{1}{9}, \frac{1}{12}$ miscount the favourable pairs.**Final Answer:** C**Answer:** (C) [Go Back to Q17](#)

Q18.

Solution**Concept – definition of a logarithm.****Step 1:** $\log_3 x = 4 \Rightarrow x = 3^4$.**Step 2:** $x = 81$.**Why the others are wrong:** 64/12/27 come from wrong bases or exponents.**Final Answer:** A**Answer:** (A) [Go Back to Q18](#)

Q19.

Solution**Concept – the base changes when comparing the other way.****Step 1:** Let $B = 100$, so $A = 160$.**Step 2:** B is less than A by $\frac{160 - 100}{160} \times 100 = \frac{60}{160} \times 100 = 37.5\%$.**Why the others are wrong:** 60% keeps the wrong base; 40/62.5 mis-divide.**Final Answer:** B Answer: (B) [Go Back to Q19](#)

Q20.

Solution**Concept – solve the linear inequality.****Step 1:** $5x - 9 < 3x + 7 \Rightarrow 5x - 3x < 7 + 9$.**Step 2:** $2x < 16 \Rightarrow x < 8$.**Why the others are wrong:** the inequality direction and constant give $x < 8$, not the others.**Final Answer:** C Answer: (C) [Go Back to Q20](#)

Q21.

Solution**Concept – add the bar heights.****Step 1:** $15 + 25 + 20 + 30 + 35$.**Step 2:** = 125 thousand.**Why the others are wrong:** 120/130/115 drop or mis-add a year's bar.**Final Answer:** B Answer: (B) [Go Back to Q21](#)

Q22.

Solution**Concept – percent increase over the earlier year.****Step 1:** 2021 = 30, 2020 = 20; increase = 10.**Step 2:** $\frac{10}{20} \times 100 = 50\%$.**Why the others are wrong:** 33.3% divides by 30; 40/60 use wrong figures.**Final Answer:** D**Answer:** (D) [Go Back to Q22](#)

Q23.

Solution**Concept – average = total ÷ count.****Step 1:** Total = 125 (from Q21), count = 5.**Step 2:** Average = $\frac{125}{5} = 25$ thousand.**Why the others are wrong:** 30/20/28 do not equal $125 \div 5$.**Final Answer:** A**Answer:** (A) [Go Back to Q23](#)

Q24.

Solution**Concept – match a year to the average of 25.****Step 1:** The five values are 15, 25, 20, 30, 35; the average is 25.**Step 2:** The year with sales exactly 25 is **2019**.**Why the others are wrong:** 2018/2020/2022 read 15, 20, 35, none equal to 25.**Final Answer:** C**Answer:** (C) [Go Back to Q24](#)

Q25.

Solution

Concept – add the “Total” column.

Step 1: $100 + 90 + 120 + 100$.

Step 2: = 410 marks.

Why the others are wrong: 400/420/430 drop part of a student’s total.

Final Answer: B

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

Q26.

Solution

Concept – compare the totals.

Step 1: Totals: $W = 100, X = 90, Y = 120, Z = 100$.

Step 2: The largest is 120, which is Y.

Why the others are wrong: W, X and Z all total less than Y’s 120.

Final Answer: A

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

Q27.

Solution

Concept – column sums for each test.

Step 1: Test 1 = $45 + 60 + 50 + 35 = 190$; Test 2 = $55 + 30 + 70 + 65 = 220$.

Step 2: Difference = $220 - 190 = 30$ marks.

Why the others are wrong: 25/35/20 come from a mis-added column.

Final Answer: B

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



Q28.

Solution

Concept – form and reduce the ratio.

Step 1: W's total = 100, X's total = 90.

Step 2: $100 : 90 = 10 : 9$.

Why the others are wrong: $9 : 10$ reverses it; $1 : 1$ and $11 : 10$ do not match $100 : 90$.

Final Answer:

Answer: [Go Back to Q28](#)



Answer Key

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

