

# XAT Quantitative Ability & DI

## Sample Paper – 5

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 trader marks his goods 50% above cost price and then allows a discount of 20% on the marked price. His profit percent is:
- (A) 25%
- (B) 30%
- (C) 15%
- (D) 20%
- 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) a loss of 4%
- (C) no profit and no loss
- (D) a loss of 2%

**Q3.** A train 150 m long crosses a platform 350 m long in 25 seconds. The speed of the train is:

- (A) 60 km/h
- (B) 66 km/h
- (C) 72 km/h
- (D) 20 km/h

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

- (A) 6 days
- (B) 5 days
- (C) 12 days
- (D) 8 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) 39
- (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 : 2?

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



(D) 12 litres

**Q7.** The difference between the compound interest and the simple interest on a sum for 2 years at 5% per annum is Rs 25. The sum is:

(A) Rs 5000

(B) Rs 10000

(C) Rs 12000

(D) Rs 8000

**Q8.** If  $x - \frac{1}{x} = 3$ , then  $x^2 + \frac{1}{x^2}$  equals:

(A) 9

(B) 11

(C) 7

(D) 13

**Q9.** The sum of the first 15 terms of the arithmetic progression 5, 9, 13, ... is:

(A) 480

(B) 500

(C) 510

(D) 495

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

(A) 2 and 6

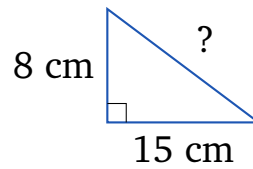
(B) 3 and 4

(C) -3 and -4

(D) 3 and -4

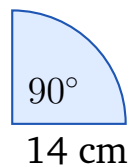
**Q11.** In the right-angled triangle shown, the two legs measure 8 cm and 15 cm. The length of the hypotenuse is:





- (A) 23 cm
- (B) 20 cm
- (C) 16 cm
- (D) 17 cm

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



- (A)  $154 \text{ cm}^2$
- (B)  $308 \text{ cm}^2$
- (C)  $77 \text{ cm}^2$
- (D)  $196 \text{ cm}^2$

**Q13.** The volume of a cube is  $343 \text{ cm}^3$ . Its total surface area is:

- (A)  $196 \text{ cm}^2$
- (B)  $343 \text{ cm}^2$
- (C)  $294 \text{ cm}^2$
- (D)  $252 \text{ cm}^2$

**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) 20
  - (B) 18
  - (C) 24
  - (D) 30
- Q16.** The number of distinct arrangements of all the letters of the word **TENDER** is:
- (A) 360
  - (B) 720
  - (C) 120
  - (D) 180
- Q17.** Two fair dice are thrown together. The probability that the sum of the numbers shown is 7 is:
- (A)  $\frac{1}{6}$
  - (B)  $\frac{1}{9}$
  - (C)  $\frac{1}{12}$
  - (D)  $\frac{5}{36}$
- Q18.** If  $\log_3 x = 4$ , then  $x$  equals:
- (A) 12
  - (B) 64
  - (C) 81
  - (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%



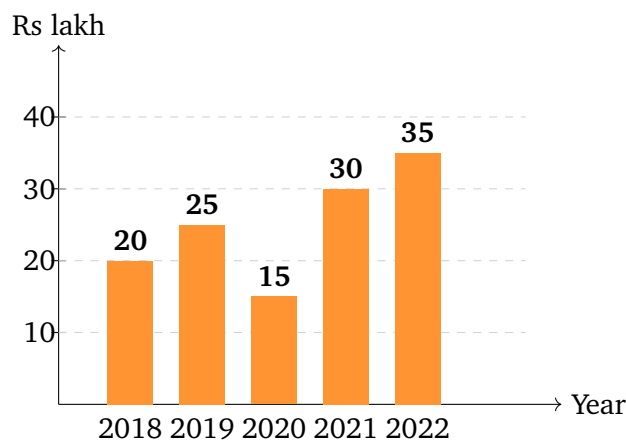
- (B) 40%
- (C) 30%
- (D) 37.5%

**Q20.** If  $5x - 3 > 3x + 9$ , then:

- (A)  $x < 6$
- (B)  $x > 12$
- (C)  $x > 6$
- (D)  $x < 12$

### Section B: Data Interpretation – Set I

*Directions (Q21–Q24): The bar chart shows the annual profit (in Rs lakh) of a startup from 2018 to 2022. Study it and answer the questions.*



**Q21.** What is the total profit of the startup over the five years (in Rs lakh)?

- (A) 120
- (B) 125
- (C) 130
- (D) 115

**Q22.** The profit in 2021 is what percent more than the profit in 2020?

- (A) 50%
- (B) 75%



- (C) 100%
- (D) 120%

**Q23.** What is the average annual profit over the five years (in Rs lakh)?

- (A) 20
- (B) 25
- (C) 30
- (D) 22

**Q24.** In which year was the profit the highest?

- (A) 2019
- (B) 2021
- (C) 2022
- (D) 2020

### Section B: Data Interpretation – Set II

*Directions (Q25–Q28): The table shows the runs scored by four batsmen in two matches. Study it and answer the questions.*

Batsman	Match 1	Match 2	Total
W	45	55	100
X	60	70	130
Y	50	40	90
Z	65	35	100

**Q25.** What is the total number of runs scored by all four batsmen over the two matches?

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



- Q26.** Which batsman scored the highest number of runs over the two matches taken together?
- (A) X
  - (B) W
  - (C) Y
  - (D) Z
- Q27.** By how many runs did the total Match 1 score exceed the total Match 2 score?
- (A) 5
  - (B) 10
  - (C) 15
  - (D) 20
- Q28.** What is the ratio of W's two-match total to Y's two-match total?
- (A) 9 : 10
  - (B) 10 : 9
  - (C) 1 : 1
  - (D) 11 : 9



## 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:** 25% and 30% come from subtracting 20% from 50% or ignoring the discount base; 15% mis-chains the two factors. The correct chained value is 20%.

**Final Answer:** D

**Answer: (D)** [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 “gain of 4%” and “no profit no loss” fail; the loss is 4%, not 2%.

**Final Answer:** B

**Answer: (B)** [Go Back to Q2](#)

Q3.

### Solution

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

**Step 1:** Distance =  $150 + 350 = 500$  m in 25 s.

**Step 2:** Speed =  $\frac{500}{25} = 20$  m/s.

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



**Why the others are wrong:** 20 km/h forgets to convert from m/s; 60 and 66 use a wrong distance or factor.

**Final Answer:**  C

**Answer:** (C) [Go Back to Q3](#)

Q4.

### Solution

**Concept – combined one-day work.**

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

**Step 2:** Time = 6 days.

**Why the others are wrong:** 5 and 12 ignore the correct LCM combination; 8 adds the times incorrectly.

**Final Answer:**  A

**Answer:** (A) [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:** 40/42/39 ignore the double-counted seventh term.

**Final Answer:**  D

**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 : 2 with milk = 50: water =  $50 \times \frac{2}{5} = 20$ .



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

**Why the others are wrong:** 5/15/12 come from changing milk or mis-setting the target ratio.

**Final Answer:**

**Answer:** (A) [Go Back to Q6](#)

Q7.

### Solution

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

**Step 1:**  $P \times (0.05)^2 = 0.0025P = 25$ .

**Step 2:**  $P = \frac{25}{0.0025} = 10000$ .

**Why the others are wrong:** 5000/12000/8000 do not satisfy  $0.0025P = 25$ .

**Final Answer:**

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

Q8.

### Solution

**Concept – square the given expression.**

**Step 1:**  $\left( x - \frac{1}{x} \right)^2 = x^2 + \frac{1}{x^2} - 2 = 9$ .

**Step 2:**  $x^2 + \frac{1}{x^2} = 9 + 2 = 11$ .

**Why the others are wrong:** 9 forgets the +2; 7 subtracts instead of adding; 13 mis-squares.

**Final Answer:**

**Answer:** (B) [Go Back to Q8](#)

Q9.

### Solution

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

**Step 1:**  $a = 5, d = 4, n = 15$ .

**Step 2:**  $S_{15} = \frac{15}{2} [10 + 14 \times 4] = \frac{15}{2} [10 + 56] = \frac{15}{2} \times 66 = 15 \times 33 = 495$ .



**Why the others are wrong:** 480/500/510 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; 20 and 16 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:**  $\frac{90}{360} = \frac{1}{4}$ ;  $\pi r^2 = \frac{22}{7} \times 196 = 22 \times 28 = 616$ .

**Step 2:** Area =  $\frac{1}{4} \times 616 = 154$  cm<sup>2</sup>.

**Why the others are wrong:** 616 would be 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 =  $6 \times 7^2 = 6 \times 49 = 294$  cm<sup>2</sup>.

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

**Final Answer:**  C

**Answer: (C)** [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:**  A

**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:** 20/18/30 drop a prime power or mis-add an exponent.

**Final Answer:**  C

**Answer: (C)** [Go Back to Q15](#)



Q16.

**Solution****Concept – arrangements with a repeated letter.****Step 1:** TENDER 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; 120/180 over-divide.**Final Answer:**  A**Answer: (A)** [Go Back to Q16](#)

Q17.

**Solution****Concept – favourable outcomes over 36.****Step 1:** Sum 7: (1, 6), (2, 5), (3, 4), (4, 3), (5, 2), (6, 1) = 6 ways.**Step 2:** Probability =  $\frac{6}{36} = \frac{1}{6}$ .**Why the others are wrong:**  $\frac{1}{9}$ ,  $\frac{1}{12}$ ,  $\frac{5}{36}$  miscount the favourable pairs.**Final Answer:**  A**Answer: (A)** [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:** 12/64/27 come from wrong bases or exponents.**Final Answer:**  C**Answer: (C)** [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; 40/30 mis-divide.**Final Answer:**  D**Answer:** (D) [Go Back to Q19](#)

Q20.

**Solution****Concept – solve the linear inequality.****Step 1:**  $5x - 3 > 3x + 9 \Rightarrow 5x - 3x > 9 + 3$ .**Step 2:**  $2x > 12 \Rightarrow x > 6$ .**Why the others are wrong:** the inequality direction and constant give  $x > 6$ , not the others.**Final Answer:**  C**Answer:** (C) [Go Back to Q20](#)

Q21.

**Solution****Concept – add the bar heights.****Step 1:**  $20 + 25 + 15 + 30 + 35$ .**Step 2:** = 125 Rs lakh.**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 = 15; increase = 15.

**Step 2:**  $\frac{15}{15} \times 100 = 100\%$ .

**Why the others are wrong:** 50% divides by 30; 75/120 use wrong figures.

**Final Answer:**  C

**Answer:** (C) [Go Back to Q22](#)

Q23.

**Solution**

**Concept – average = total ÷ count.**

**Step 1:** Total = 125 (from Q21), count = 5.

**Step 2:** Average =  $\frac{125}{5} = 25$  Rs lakh.

**Why the others are wrong:** 20/30/22 do not equal  $125 \div 5$ .

**Final Answer:**  B

**Answer:** (B) [Go Back to Q23](#)

Q24.

**Solution**

**Concept – pick the tallest bar.**

**Step 1:** The five values are 20, 25, 15, 30, 35.

**Step 2:** The largest is 35, which belongs to **2022**.

**Why the others are wrong:** 2019/2021/2020 read 25, 30, 15, all below 35.

**Final Answer:**  C

**Answer:** (C) [Go Back to Q24](#)



Q25.

**Solution**

**Concept – add the “Total” column.**

**Step 1:**  $100 + 130 + 90 + 100$ .

**Step 2:** = 420 runs.

**Why the others are wrong:** 400/410/430 drop part of a batsman’s total.

**Final Answer:**  D

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

Q26.

**Solution**

**Concept – compare the totals.**

**Step 1:** Totals:  $W = 100, X = 130, Y = 90, Z = 100$ .

**Step 2:** The largest is 130, which is X.

**Why the others are wrong:** W, Y and Z all total less than X’s 130.

**Final Answer:**  A

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

Q27.

**Solution**

**Concept – column sums for each match.**

**Step 1:** Match 1 =  $45 + 60 + 50 + 65 = 220$ ; Match 2 =  $55 + 70 + 40 + 35 = 200$ .

**Step 2:** Difference =  $220 - 200 = 20$  runs.

**Why the others are wrong:** 5/10/15 come from a mis-added column.

**Final Answer:**  D

**Answer: (D)** [Go Back to Q27](#)



Q28.

**Solution**

**Concept – form and reduce the ratio.**

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

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

**Why the others are wrong:**  $9 : 10$  reverses it;  $1 : 1$  and  $11 : 9$  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	D	2	B	3	C	4	A	5	D
6	A	7	B	8	B	9	D	10	B
11	D	12	A	13	C	14	A	15	C
16	A	17	A	18	C	19	D	20	C
21	B	22	C	23	B	24	C	25	D
26	A	27	D	28	B				

