

XAT Quantitative Ability & DI

Sample Paper – 3

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 30% above cost price and then allows a discount of 15% on the marked price. His profit percent is:
- (A) 15%
- (B) 12%
- (C) 13%
- (D) 10.5%
- Q2.** A dealer sells two watches 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 150 m long crosses a platform 350 m long in 20 seconds. The speed of the train is:

- (A) 72 km/h
- (B) 80 km/h
- (C) 90 km/h
- (D) 100 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) 5 days
- (B) 7.5 days
- (C) 6 days
- (D) 12.5 days

Q5. The average of 13 numbers is 40. The average of the first seven is 38 and that of the last seven is 43. The seventh number is:

- (A) 47
- (B) 40
- (C) 45
- (D) 38

Q6. A 50-litre mixture contains milk and water in the ratio 4 : 1. How much water must be added so that the ratio becomes 4 : 3?

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



(D) 25 litres

Q7. The difference between the compound interest and the simple interest on a sum for 2 years at 20% per annum is Rs 80. The sum is:

(A) Rs 1000

(B) Rs 4000

(C) Rs 1600

(D) Rs 2000

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

(A) 9

(B) 7

(C) 13

(D) 11

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

(A) 480

(B) 510

(C) 495

(D) 525

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

(A) 2 and 6

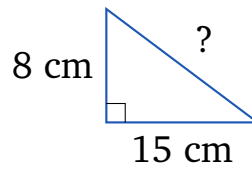
(B) 3 and 4

(C) -3 and -4

(D) 3 and -4

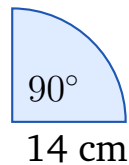
Q11. In the right-angled triangle shown, the two legs measure 8 cm and 15 cm. The length of the hypotenuse is:





- (A) 23 cm
- (B) 17 cm
- (C) 20 cm
- (D) 16 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) 308 cm^2
- (C) 77 cm^2
- (D) 196 cm^2

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

- (A) 196 cm^2
- (B) 245 cm^2
- (C) 294 cm^2
- (D) 336 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) 12
- (B) 18
- (C) 20
- (D) 24

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

- (A) 420
- (B) 840
- (C) 210
- (D) 5040

Q17. Two fair dice are thrown together. The probability that the sum of the numbers shown is 10 is:

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

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

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

Q19. A 's salary is 20% more than B 's salary. By what percent is B 's salary less than A 's?

- (A) 20%



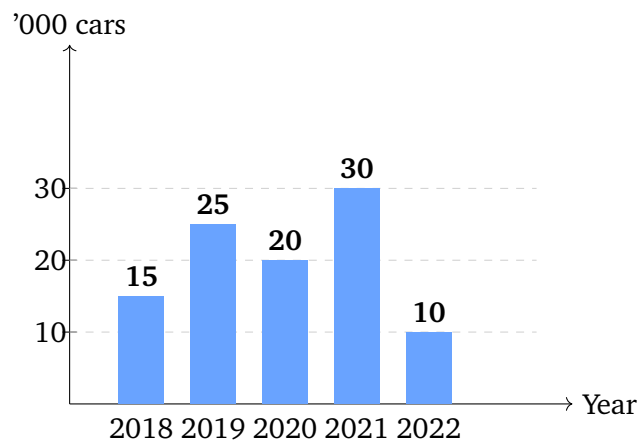
- (B) 25%
- (C) $16\frac{2}{3}\%$
- (D) 15%

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

- (A) $x < 5$
- (B) $x > 5$
- (C) $x > 2$
- (D) $x < 2$

Section B: Data Interpretation – Set I

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



- Q21.** What is the total number of cars sold by the dealership over the five years (in thousands)?
- (A) 90
 - (B) 100
 - (C) 110
 - (D) 95
- Q22.** The number of cars sold in 2021 is what percent more than the number sold in 2020?



- (A) 40%
- (B) 33.3%
- (C) 50%
- (D) 60%

Q23. What is the average number of cars sold per year over the five years (in thousands)?

- (A) 20
- (B) 25
- (C) 18
- (D) 22

Q24. In which year was the number of cars sold exactly equal to the five-year average?

- (A) 2018
- (B) 2019
- (C) 2021
- (D) 2020

Section B: Data Interpretation – Set II

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

Student	Test I	Test II	Total
W	45	55	100
X	60	50	110
Y	35	70	105
Z	50	40	90

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

- (A) 395
- (B) 400



(C) 405

(D) 410

Q26. Which student scored the highest total marks over the two tests taken together?

(A) W

(B) X

(C) Y

(D) Z

Q27. By how many marks did the total Test II score exceed the total Test I score?

(A) 10

(B) 15

(C) 20

(D) 25

Q28. What is the ratio of W's two-test total to Z's two-test total?

(A) 9 : 10

(B) 10 : 9

(C) 1 : 1

(D) 11 : 10



Detailed Solutions

Q1.

Solution

Concept – successive markup and discount.

Step 1: Let CP = 100. Marked price = $100 + 30\% = 130$.

Step 2: Selling price = $130 \times (1 - 0.15) = 130 \times 0.85 = 110.5$.

Step 3: Profit = $110.5 - 100 = 10.5$, so profit percent = 10.5% .

Why the others are wrong: A/B/C come from forgetting the discount or subtracting 15% from 30%; the correct chained value is 10.5%.

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 watch = $\frac{1200}{1.2} = 1000$; 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 = $150 + 350 = 500$ m in 20 s.

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

Step 3: $25 \times \frac{18}{5} = 90$ km/h.

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



factor.

Final Answer: C

Answer: (C) [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 = 6 days.

Why the others are wrong: 5 and 7.5 ignore the correct LCM combination; 12.5 adds the times wrongly.

Final Answer: C

Answer: (C) [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 = $7 \times 38 = 266$; sum of last seven = $7 \times 43 = 301$; their sum = 567.

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

Why the others are wrong: 40/45/38 ignore the double-counted seventh term.

Final Answer: A

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

Q6.

Solution

Concept – only water changes; milk stays fixed.

Step 1: Milk = $\frac{4}{5} \times 50 = 40$, water = 10.

Step 2: For 4 : 3 with milk = 40: water = $40 \times \frac{3}{4} = 30$.

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: A

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

Q7.

Solution

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

Step 1: $P \times (0.2)^2 = 0.04P = 80$.

Step 2: $P = \frac{80}{0.04} = 2000$.

Why the others are wrong: 1000/4000/1600 do not satisfy $0.04P = 80$.

Final Answer: D

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

Q8.

Solution

Concept – square the given expression.

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

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: D

Answer: (D) [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: $S_{15} = \frac{15}{2} [10 + 14 \times 4] = 7.5 [10 + 56] = 7.5 \times 66 = 495$.

Why the others are wrong: 480/510/525 use a wrong $n - 1$ or d .



Final Answer: C

Answer: (C) [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: B

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

Q12.

Solution

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

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

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

Why the others are wrong: 616 is the full circle so 308 is a semicircle; 196 is r^2 ; 77 halves the wrong figure.

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: 196/245/336 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: The powers cycle as 3, 4, 2, 1 with period 4, since $3^4 = 81 \equiv 1 \pmod{5}$.

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 1, 2, 3 within the cycle, not to a multiple of 4.

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: 12/18/20 drop a prime power or mis-add an exponent.

Final Answer: D

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



Q16.

Solution**Concept – arrangements with repeated letters.****Step 1:** SUCCESS has 7 letters with S repeated three times and C repeated twice.**Step 2:** Arrangements = $\frac{7!}{3!2!} = \frac{5040}{6 \times 2} = \frac{5040}{12} = 420$.**Why the others are wrong:** 5040 ignores both repeats; 840 divides by 3! only; 210 over-divides.**Final Answer:** A Answer: (A) [Go Back to Q16](#)

Q17.

Solution**Concept – favourable outcomes over 36.****Step 1:** Sum 10: (4, 6), (5, 5), (6, 4) = 3 ways.**Step 2:** Probability = $\frac{3}{36} = \frac{1}{12}$.**Why the others are wrong:** $\frac{1}{9}, \frac{1}{6}, \frac{1}{18}$ miscount the favourable pairs.**Final Answer:** B Answer: (B) [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:** A Answer: (A) [Go Back to Q18](#)

Q19.

Solution**Concept – the base changes when comparing the other way.****Step 1:** Let $B = 100$, so $A = 120$.**Step 2:** B is less than A by $\frac{120 - 100}{120} \times 100 = \frac{20}{120} \times 100 = 16\frac{2}{3}\%$.**Why the others are wrong:** 20% keeps the wrong base; 25/15 mis-divide.**Final Answer:** C Answer: (C) [Go Back to Q19](#)

Q20.

Solution**Concept – solve the linear inequality.****Step 1:** $5x - 3 > 3x + 7 \Rightarrow 5x - 3x > 7 + 3$.**Step 2:** $2x > 10 \Rightarrow x > 5$.**Why the others are wrong:** the inequality direction and constants give $x > 5$, not the others.**Final Answer:** B Answer: (B) [Go Back to Q20](#)

Q21.

Solution**Concept – add the bar heights.****Step 1:** $15 + 25 + 20 + 30 + 10$.**Step 2:** = 100 thousand cars.**Why the others are wrong:** 90/110/95 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: C

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

Q23.

Solution

Concept – average = total ÷ count.

Step 1: Total = 100 (from Q21), count = 5.

Step 2: Average = $\frac{100}{5} = 20$ thousand cars.

Why the others are wrong: 25/18/22 do not equal $100 \div 5$.

Final Answer: A

Answer: (A) [Go Back to Q23](#)

Q24.

Solution

Concept – match a year to the average of 20.

Step 1: The five values are 15, 25, 20, 30, 10; the average is 20.

Step 2: The year with sales exactly 20 is **2020**.

Why the others are wrong: 2018/2019/2021 read 15, 25, 30, none equal to 20.

Final Answer: D

Answer: (D) [Go Back to Q24](#)



Q25.

Solution

Concept – add the “Total” column.

Step 1: $100 + 110 + 105 + 90$.

Step 2: = 405 marks.

Why the others are wrong: 395/400/410 drop part of a student’s total.

Final Answer: C

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

Q26.

Solution

Concept – compare the totals.

Step 1: Totals: $W = 100, X = 110, Y = 105, Z = 90$.

Step 2: The largest is 110, which is X.

Why the others are wrong: W, Y and Z all total less than X’s 110.

Final Answer: B

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

Q27.

Solution

Concept – column sums for each test.

Step 1: Test I = $45 + 60 + 35 + 50 = 190$; Test II = $55 + 50 + 70 + 40 = 215$.

Step 2: Difference = $215 - 190 = 25$ marks.

Why the others are wrong: 10/15/20 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, Z'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	D	2	D	3	C	4	C	5	A
6	A	7	D	8	D	9	C	10	B
11	B	12	A	13	C	14	A	15	D
16	A	17	B	18	A	19	C	20	B
21	B	22	C	23	A	24	D	25	C
26	B	27	D	28	B				

