

CAT

Solved Sample Papers

Paper 1 to Paper 8

CAT Sample Paper 1

Quantitative Ability

DIRECTIONS for questions 1 to 7: Answer the questions independently of each other.

1. The total cost of 2 pencils, 5 erasers and 7 sharpeners is Rs.30, while 3 pencils and 5 sharpeners cost Rs.15 more than 6 erasers. By what amount (in Rs.) does the cost of 39 erasers and 1 sharpener exceed the cost of 6 pencils?

- (1) 20
- (2) 30
- (3) It does not exceed
- (4) Cannot be determined

2. If the roots of the equation $(x + 1)(x + 9) + 8 = 0$ are a and b , then the roots of the equation $(x + a)(x + b) - 8 = 0$ are

- (1) 1 and 9
- (2) -4 and -6
- (3) 4 and 6
- (4) Cannot be determined

3. What is the remainder when 7^{700} is divided by 100?

- (1) 1
- (2) 61
- (3) 41
- (4) 21

4. Balram, the local shoe shop owner, sells four types of footwear - Slippers (S), Canvas Shoes (C), Leather Shoes (L) and Joggers (J). The following information is known regarding the cost prices and selling prices of these four types of footwear:

- (i) L sells for Rs.500 less than J, which costs Rs.300 more than S, which, in turn, sells for Rs.200 more than L.
- (ii) L costs Rs.300 less than C, which sells for Rs.100 more than S,

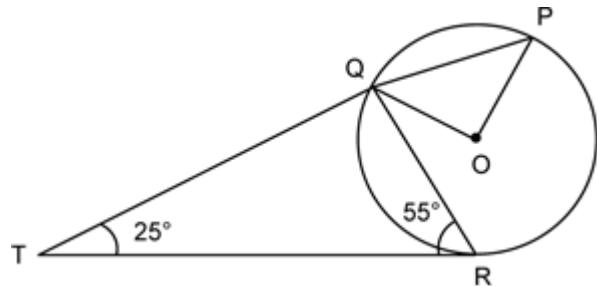


which, in turn, costs Rs.100 less than C.

If it is known that Balram never sells any item at a loss, then which of the following is true regarding the profit percentages earned by Balram on the items L, S, C and J represented by l , s , c and j respectively?

- (1) $l \geq c \geq s \geq j$
- (2) $c \geq s \geq l \geq j$
- (3) $l \geq s \geq c \geq j$
- (4) $s \geq l \geq j \geq c$

5. In the figure below, P, Q and R are points on a circle with centre O. The tangent to the circle at R intersects secant PQ at T. If $\angle QRT = 55^\circ$ and $\angle QTR = 25^\circ$, find $\angle POQ$.



- (1) 110°
- (2) 100°
- (3) 90°
- (4) 50°

6. A sequence of 4 digits, when considered as a number in base 10 is four times the number it represents in base 6. What is the sum of the digits of the sequence?

- (1) 7
- (2) 6
- (3) 9
- (4) 8

7. Some friends planned to contribute equally to jointly buy a CD player. However, two of them decided to withdraw at the last minute. As a result, each of the others had to shell out one rupee more than what they had planned for. If the price (in Rs.) of the CD player is an integer between 1000 and 1100, find the number of friends who actually contributed?

- (1) 21
- (2) 23
- (3) 44
- (4) 46

DIRECTIONS for questions 8 and 9: Answer the questions on the basis of the information given below.

A robot is designed to move in a peculiar way and it can be set in motion by a microprocessor program. The program can be initiated by assigning a positive rational value to its variable n . The program directs the robot to move in the following way. As soon as the program is started, the robot starts from the point O, moves $2n$ metres northward and changes its direction by n° to the right. It then moves $2n$ metres forward and again changes its direction by n° to the right and continues in this manner till it reaches the starting point O, or till it covers a total distance of 1000 m, whichever happens first, and then it stops.

8. I assigned a value for n and started the program. If the robot finally came back to O and stopped, what is the total distance that it has covered?

- (1) 180 m
- (2) 360 m
- (3) 720 m
- (4) Cannot be determined

9. For how many values of n in the intervals [1, 60] does the robot cover less than 1000 m, before it stops?

- (1) 19
- (2) 60
- (3) 355
- (4) Infinite

DIRECTIONS for questions 10 to 20: Answer the questions independently of each other.

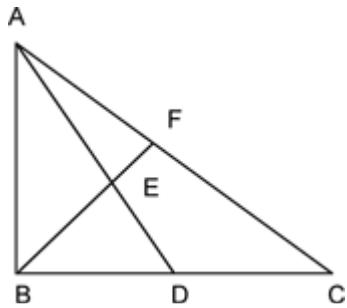
10. If $N = 888\dots$ up to 100 digits, what is the remainder when N is divided by 625?

-
- (1) 128
 - (2) 138
 - (3) 338
 - (4) 388

11. If $[\log_{10}1] + [\log_{10}2] + [\log_{10}3] + [\log_{10}4] + \dots + [\log_{10}n] = n$, where $[x]$ denotes the greatest integer less than or equal to x , then

- (1) $96 \leq n < 104$
- (2) $104 \leq n < 107$
- (3) $107 \leq n < 111$
- (4) $111 \leq n < 116$

12. In the figure below, $BD = 8 \text{ cm}$ and $DC = 6 \text{ cm}$. $AE : ED = 3 : 4$. If $AF = 12 \text{ cm}$, find AC (in cm).



- (1) 28
- (2) 38
- (3) 44
- (4) 40

13. A regular polygon has an even number of sides. If the product of the length of its side and the distance between two opposite sides is $\frac{1}{4}$ th of its area, find the number of sides it has.

- (1) 6
- (2) 8
- (3) 20
- (4) 16

14. There are three cities A, B and C, not on the same straight road. Two buses P and Q start simultaneously from A and B respectively towards C. By the time Q reaches C, P is exactly halfway to C. Immediately after Q reaches C, it starts travelling towards A and it

crosses P at a point 165 km from A. The ratio of the speeds of P and Q is 3 : 5. Assume that the roads joining A to C, B to C and B to A are all straight roads. If B is twice as far as from A as it is from C

and P would take to cover the distance from A to B, how much time would Q take to cover the distance from C to A?

- (1) $2\frac{2}{5}$ hours
- (2) 3 hours
- (3) $3\frac{3}{5}$ hours
- (4) 4 hours

15. Two positive real numbers, a and b , are expressed as the sum of m positive real numbers and n positive real numbers respectively as follows:

$$a = s_1 + s_2 + \dots + s_m \text{ and}$$

$$b = t_1 + t_2 + \dots + t_n$$

If $[a] = [s_1] + [s_2] + \dots + [s_m] + 4$ and $[b] = [t_1] + [t_2] + \dots + [t_n] + 3$, where $[x]$ denotes the greatest integer less than or equal to x , what is the minimum possible value of $m + n$?

- (1) 6
- (2) 10
- (3) 8
- (4) 9

16. Consider two figures A and D that are defined in the co-ordinate plane. Each figure represents the graph of a certain function, as defined below :

$$A: |x| - |y| = a$$

$$D: |y| = d$$

If the area enclosed by A and D is 0, which of the following is a possible value of (a, d) ?

- (1) (2, 1)
- (2) (-2, 1)
- (3) (-2, 3)
- (4) (2, 3)

17. A natural number n is such that $120 < n \leq 240$. If HCF of n and 240 is 1, how many values of n are possible?

- (1) 24
- (2) 32
- (3) 36
- (4) 40

18. If $S = \frac{2}{10} + \frac{6}{10^2} + \frac{12}{10^3} + \frac{20}{10^4} + \frac{30}{10^5} + \frac{42}{10^6} + \dots$, find the value of S ?

- (1) 24/90
- (2) 242/900
- (3) 245/900
- (4) 200/729

19. If the sum to infinity of the series $2 + (2 - d)\frac{2}{3} + (2 + d)\frac{4}{9} + (2 + 3d)\frac{8}{27} + \dots$ is $\frac{5}{2}$, what is the value of d ?

- (1) 7/12
- (2) -7/12
- (3) -5/12
- (4) 5/12

20. The first n natural numbers, 1 to n , have to be arranged in a row from left to right. The n numbers are arranged such that there are an odd number of numbers between any two even numbers as well as between any two odd numbers. If the number of ways in which this can be done is 72, then find the value of n .

- (1) 6
- (2) 7
- (3) 8
- (4) More than 8

DIRECTIONS for questions 21 to 23: Answer the questions on the basis of the information given below.

After facing yet another World Cup debacle, the Board of Cricket Control in India (BCCI) is in search of a new coach for the team. It shortlisted five persons - Anshuman, Buchanen, John, Whatmore and Chappel. Each of them is from a different country among Australia, India, Japan, Pakistan and Canada, not necessarily in that order. At present, each of them is coaching the team of a different country among Australia, Bangladesh, China, Wales and Bermuda, not necessarily in that order. The following details were also observed about their particulars:

- (i) For any person, each of his three particulars - his name, the name of the country from which he is and the name of the country that he is coaching at present, starts with a different letter.
- (ii) Whatmore is coaching Australia and John is from neither Australia nor Pakistan.
- (iii) Buchanen is not coaching China and the person who is coaching Bermuda is from Canada.
- (iv) Anshuman is neither from Canada nor from Pakistan and also the person from Pakistan is coaching Bangladesh.

21. Whatmore is from which country?

- (1) India
- (2) Japan
- (3) Canada
- (4) Cannot be determined

22. Who is the person from Australia?

- (1) Buchanen
- (2) John
- (3) Whatmore
- (4) Cannot be determined

23. The person from Japan is definitely not coaching

- (1) China.

- (2) Wales.
- (3) Australia.
- (4) More than one of the above

DIRECTIONS for questions 24 to 27: Answer the questions on the basis of the information given below.

Mr Suzuki, a car dealer, sold cars of only two brands, A and B, in the previous year. This year, he introduced a new brand, C. The number of cars of brand A and brand B sold in the previous year were in the ratio 3 : 2, and the ratio of the number of cars sold in the previous year to that sold in this year is 2 : 3 for brand A and 2 : 5 for brand B. Further, the number of cars of brand C sold this year forms 81% of the total number of cars sold this year.

24. Find the number of cars of brand C sold this year, given that a total of 24 cars of brand A were sold in the previous year.

- (1) 324
- (2) 648
- (3) 162
- (4) 243

25. What is the percentage increase in the total number of cars sold this year when compared to the total number of cars sold in the previous year?

- (1) 400%
- (2) 600%
- (3) 900%
- (4) 1000%

26. In the next year, Mr.Suzuki wants to increase the total sales by 80%, compared to the total sales this year, by keeping the sales of each of A, B and C at the same level as that in this year and introducing a new brand D. By what percent will the number of cars of brand D (to be sold next year) be more than the total number of cars sold last year?

- (1) 400%
- (2) 600%
- (3) 900%
- (4) 700%

27. If a total of 380 cars were sold this year, and the sales of C this year were nil, instead of 81% of total sales, then how many cars of brand A were sold in the previous year?

- (1) 140
- (2) 120
- (3) 100
- (4) 160

DIRECTIONS for questions 28 and 29: The question given below is followed by two statements, I and II. Study the information given in the two statements and assess whether the statements are sufficient to answer the question and choose the appropriate option from among the choices given below:

28. Two of the three cricketers Pavan, Rajan and Tarun are selected to the national team. Each of these three persons scored a different number of centuries and a different number of runs. Further, among these three, Tarun scored the highest number of centuries. Who among Pavan, Rajan and Tarun is not selected to the national team?

- I. The person with the higher number of runs between Tarun and Pavan, is the person who scored the lesser number of centuries between the two persons selected.
- II. The person with the least number of runs between Rajan and Tarun, is the person who scored the higher number of centuries between the two persons selected.

- (1) The question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.
- (2) The question can be answered by using either statement alone.
- (3) The question can be answered by using both statements together, but cannot be answered using either statement alone.
- (4) The question cannot be answered even by using both statements together.

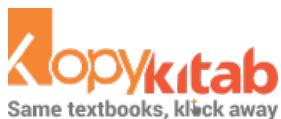
29. Triangle ABC is right angled at B. What is the value of AB + BC?

- I. Diameter of the circle inscribed in the triangle ABC is 10 cm.
- II. Diameter of the circle circumscribing the triangle ABC is 27 cm.

- (1) The question can be answered by using one of the statements alone, but cannot be answered using the other statement alone.
- (2) The question can be answered by using either statement alone.



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