CAT 2022 Slot 1 Memory-based Questions

Section - Quantitative Aptitude (QA)

Q1. Out of a total 100 people surveyed, 73 like Coffee, 80 like Tea, 52 like Lemonade. Find the difference between the minimum and maximum number of people who like all 3 drinks.

A) 52
B) 48
C) 47
D) 53

Answer Key: The answer is **C) 47**, calculated based on the 'chocolate-distribution' method.

Q2. Let A, B, C be non-zero numbers such that b2 <4ac, and f(x) = ax2 + bx + c. If set S consists of all integers 'm' such that f(m) <0, then set S must necessarily be:

A) Either empty or set of all integers
B) The set of all integers
C) The Empty Set
D) Set of all Positive integers

Answer Key: The answer is **A)** Either empty or set of all integers

Q3. The largest real value of 'A' for which equation |x-a|+|x-1|=2 has an infinite number of solutions for x is:

A) 0
B) 1
C) 2
D) -1

Answer Key: The answer is **B) 1** solved with the help of a number scale.

Q4. Two trains - A&B started from two points X and Y, respectively, towards each other simultaneously. Train A reaches point Y in 10 minutes. Train B takes 9 more minutes to reach point X, after meeting train A. What is the total time taken by train B to travel the complete distance YX?

A) 12
B) 6
C) 15
D) 10

Answer Key: The answer is **C) 15 minutes** based on the ratio of speeds of both trains calculated as per their meeting point, that is, A:B = 3:2.

Q5. Let ABCD be a parallelogram, such that the coordinates of 3 verticals (i.e. A, B, and C) are (1,1), (3,4), (-2, 8), respectively. Then, the coordinates of vertex D is:

A) (-4, 5)
B) (0, 11)
C) (-3, 4)
D) (4, 5)

Answer Key: The answer is A) (-4,5) by calculating the mid-point of AC and DB from bisected diagonals.

Q6. Let $0 \leq A \leq X \leq 100$, and $f(x) = |X-A| + |X-100| + |X-A-50|$ such that the maximum of f(x) becomes 100 when A = _____.

A) 25
B) 100
C) 50
D) 0

Answer Key: The answer is **C) 50**.

Q7. Amal buys 100 kg of syrup and 120 kg of juice. The syrup is 20% less costly than the juice per kg. He sells 10 kg of syrup at 10% profit and 20 kg of juice at 20% profit. He mixes the remaining liquids to sell at Rs. 308.32 per kg. If overall profit is 64%, then Amal's cost price for syrup in Rs./kg is:
Answer Key: The answer is **Rs. 0.5 per kg**.

Q8. Let a and b be natural numbers such that $a^2 + ab + a = 14$. $b^2 + ab + b = 28$. Then $2a+b$ = _____.

A) 10
B) 8
C) 7
D) 9

Answer Key: The answer is **B) 8**.

Q9. Ankita buys 4 kg cashews, 14 kg peanuts, and 6 kg almonds. Cost of 7 kg cashews = 30 kg of peanuts = 9 kg almonds. She mixes all three nuts and marks a price for the mixture in order to make a profit of Rs.1752. She sells 4 kg of mixture at this marked price and remaining at a 20% discount on marked price, thus making a total profit of Rs.744. Then the amount amount (in Rs.) that she had spent in buying almonds is:

A) 2520
B) 1440
C) 1680
D) 1176

Answer Key: The answer is **C) 1680**.

Q10. A is the largest positive integer that divides all numbers of form $3^k + 4^k + 5^k$ and B is the largest positive integer that divides all numbers of form $4^k + 3(4^k) + 4^{k+2}$ where k is the positive integer. Then A + B =_____?

Answer Key: The answer is **82**.

Q11. In a village, the ratio of total males and total females is 5:4. Ratio of literate males and literate females is 2:3. Also, the ratio of illiterate males and illiterate females is 4:3. If 3600 males are literate the number of total females is?
Answer Key: The answer is **43,200 total females**.

Q12. A trapezium ABCD has angle BAD 90°- side BC measures 3cm and side AD measures 8cm. If the perimeter of the trapezium is 36cm, then what is the area of trapezium?
Answer Key: The answer is **66cm**.

Q13. Alex invested his savings in 2 parts, first part at 15% p.a. on a simple interest for 4 years and second part at 12% p.a. on a simple interest of 3 years. If interests from both the investments are equal, then the percentage of his savings in 1st part is?

A) 37.5%
B) 40%
C) 60%
D) 62.5%

Answer Key: The answer is **A) 37.5%**.

Q14. Average weight of students in class increases by 600gm when some new students join the class. If the average weight of new students is 3kg more than original students, then the ratio of number of original students to new students is?

A) 4:1
B) 1:2
C) 3:1
D) 1:4

Answer Key: The answer is **A) 4:1.**

Q15. Find the total number of ways such that 20 identical balloons are distributed to 4 children if each of them gets some, but none of them gets an odd number of balloons.
Answer Key: The answer is **28 ways**.

Section - DILR

DILR Set 1: Token

Prompt:

5 interviewers A,B,C,D,E and F carried interviews of 5 researchers P,Q ,R ,S and T to allocate the fund for their research. The interviewers have tokens numbered 2,3,5,7,11 and 13 in some order. All the interviewers take interview of all 5 researchers and award at most 1 token to them, finally the fund is allocated to the researcher in following manner- the product of all the token that researcher has received is multiplied by 1000 and that value is given to the respective researcher as the fund.

The different amounts of funds that researcher received in decreasing order are as follow 390000, 210000, 165000, 77000, 66000 also we know the following

1) F awarded tokens to everyone except Q. while A awarded token to no one except P.
2) R received highest number of tokens than anyone but she did not receive from E
3) B awarded token to S but not to Q while D awarded token to Q but

Q1 of 5. How many tokens Q received?
Answer Key: The answer is **2**.

Q2 of 5. Who definitely received tokens from B but not from D?

A) Q
B) T
C) P
D) R

Answer Key: The answer is **C) P**.

Q3 of 5. How many tokens was C awarded?
Answer Key: The answer is **3**.

Q4 of 5. How many tokens S received?
Answer Key: The answer is **3**.

Q5 of 5. Which of the following could be the amount of funding that T received?

1. **66,000**
2. **165,000**

A) Only 1
B) Only 2
C) Both 1 and 2
D) Neither 1 nor 2

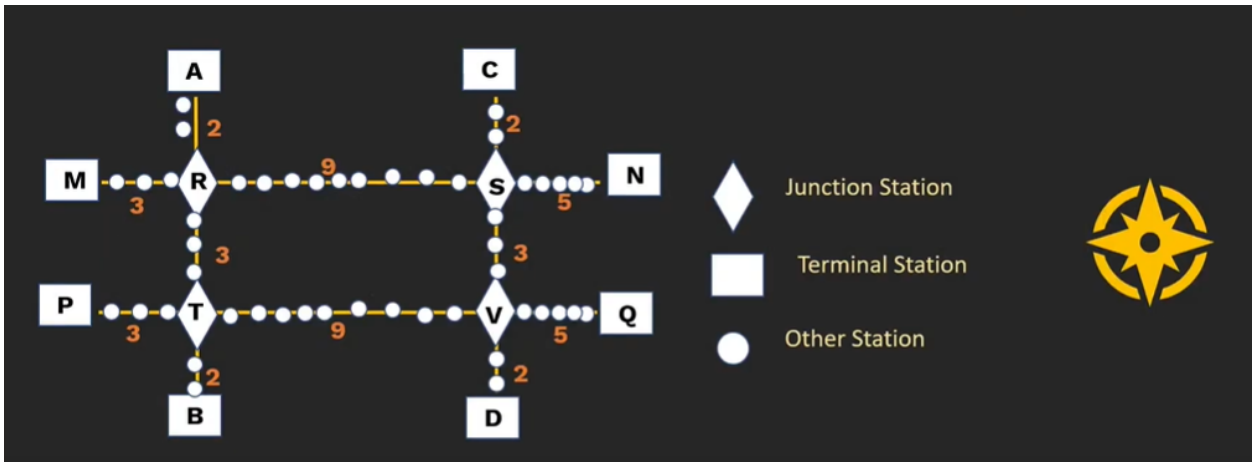
Answer Key: The answer is **C) Both 1 and 2**.

DILR Set 2: Train

Prompt:

Each train runs either in east-west direction or north south direction, but not both. All trains stop for 2 mins at each of the junction stations on the way and for 1 min at each of the other stations. It takes 2 minutes to reach the next station for trains going in east-west direction and 3 minute to reach the next station for trains going in north-south direction. From each terminal station, the first train starts at 6 a.m. the last trains leave the terminal stations at midnight other wise, during the service hours, there are metro service every 15 minutes in the north-south lines and every 10 minutes in east-west lines. A train must rest for at least 15 minutes after completing a trip at the terminal station, before it can under take the nest trip in the reverse direction. Call questions are related to train metro service only Assume that if some one reaches a station exactly at a time a train is supposed to leave (s) he can catch the train.

Chart Pattern:



Q1 of 5. If Hari is ready to board a train at 8:05 a.m. from station M, then when is the earliest he can reach station N?

A) 9:11 a.m.
B) 9:13 a.m.
C) 9:06 a.m.
D) 9:01 a.m.

Answer Key: The correct answer is **A) 9:11 a.m.**

Q2 of 5. If Priya is ready to board a train at 10:25 a.m. from station T, then when is the earliest she can reach station S?

A) 11:07 a.m.
B) 11:28 a.m.
C) 11:22 a.m.
D) 11:12 a.m.

Answer Key: The correct answer is **C) 11:22 a.m.**

Q3 of 5. Hari and Priya are expected to reach station S late. What is the latest time by which she must reach station B before 1 a.m. via station R?

A) 11:49 a.m.
B) 11:43 a.m.
C) 11:39 a.m.
D) 11:35 a.m.

Answer Key: The correct answer is **A) 11:49 a.m.**

Q4 of 5. What is the minimum number of trains that are required to provide service on the AB line considering both north and south directions?

Answer Key: The correct answer is **8**.

Q5 of 5. What is the minimum number of trains that are required to provide the service in this city?

Answer Key: The correct answer is **48**.

Stay tuned for more questions to be added along with the unofficial answer key!