Cognizant Placement Papers – 04

1. A train running at 5 km/hr and 125 meters long passes a man moving in the same direction in which the train is going, in 10 seconds. The speed of the train is:

a) 50 km/hr

b) 54 km/hr

c) 55 km/hr

d) 60 km/hr

Answer: a) 50 km/hr

Solution:
The relative speed of the train to man = (125 / 10) m/s
= 25 / 2 m/s
= (25/2 * 18/5) km/hr
= 45 km/hr
Let the relative speed of the train be x km/hr.
Therefore, x-45 = 5 or x = 50 km/hr

2. A sum fetched a total simple interest of Rs. 4016.25 at the rate of 9 % p.a. in 5 years. What is the sum of the money or the principal amount?

a) Rs. 4462.50

b) Rs. 8032.50

c) Rs. 8900

d) Rs. 8925

Answer: d) Rs. 8925

Solution:
We know, SI = PTR/100
or, P = (SI * 100) / TR
or, P = (4016.25 * 100) / 9*5
or, P = 8925 (answer)

3. In an election between two candidates, one got 55% of the total valid votes and got 20% invalid votes. At the end of the day when the total number of votes were counted, the total number was found to be 7500. So what was the total number of valid votes that the winning candidate got, was:

a) 2800

b) 3300

c) 3100

d) 2700

Answer: d) 2700

Solution:
Since 20% of the votes were invalid, 80% of the votes were valid = 80% of 7500 = 6000 votes were valid
Since one candidate got 55% of the total valid votes, then the second candidate must have 45% of the votes = 0.45 * 6000 = 2700 votes

4. January 1, 2008, is Tuesday. What day would lie on Jan 1, 2009?

a) Thursday

b) Sunday

c) Tuesday

d) Wednesday

Answer: a) Thursday

Solution:
In such type of questions, one needs to identify the type of year, i.e., whether the year is a normal year or is it a leap year.
So the year 2008 was a leap year. So, it has to have 2 odd days. The year following 2008 is 2009 so the first day of the year would be two days ahead of what it was in 2008. So 1st Jan 2009 would be a Thursday.

5. A whole number n which when divided by 4 gives 3 as remainder. What will be the remainder when 2n is divided by 4?

a) 0

b) 1

c) 2

d) 4

Answer: c) 2

Solution:
According to the question,

n = 4q + 3
therefore, 2n = 8q + 6
or, 2n = 4(2q + 1) + 2
Thus, we get when 2n is divided by 4, the remainder is 2.

6. In a 100 m race, Aman takes 36 seconds to complete the race and Bijay takes 45 seconds. By what distance Aman beats Bijay in the race?

a) 20 meters

b) 25 meters

c) 22.5 meters

d) 9 meters

Answer: b) 20 meters

Solution:
The difference in the time of the race completion = 45 – 36 = 9 sec.
So the distance covered by Bijay in 9 sec = 100/45 * 9 = 20 meters.
Therefore Aman beats Bijay by 20 meters

7. Identify the odd number from the series: 835, 734, 642, 751, 853, 981, 532

a) 532

b) 853

c) 981

d) 751

Answer: d) 751

Solution:
Looking at the series closely we see that in each number, the difference between the first and last digit of each number is the middle number, except 751

8. In a group of 6 men and 4 women, four are to be selected. In how many different ways can they be selected such that at least one man should be there in the group?

a) 209 ways

b) 194 ways

c) 205 ways

d) 120 ways

Answer: a) 209 ways

Solution:
A group of 4 has to be selected with at least one man So this can be done in
(1 man and 3 women), (2 men and 2 women), (3 men and 1 women) and 4 men.
The number of ways in which this can be done is
(6C1 x 4C3) + (6C2 x 4C2) + (6C3 x 4C1) + (6C4)
On solving this we get 209 ways in which these combinations can be obtained.

9. A box contains 15 marbles out of which 4 are white, 5 are red and 6 are blue. Three balls are to be drawn at random from the bag. What is the probability that all of them are red is:

a) 1/22

b) 2/89

c) 2/77

d) 2/91

Answer: d) 2/91

Solution:
The number of ways in which all the three balls would be red = 5C3 / 15C3
= 10/455 = 2/91

10. X, Y and Z can do a piece of work in 20, 30 and 60 days respectively depending on their capacity of doing work. If X is assisted by Y and Z on every third day, then in how X will complete the work?

a) 12 days

b) 15 days

c) 16 days

d) 18 days

Answer: b) 15 days

Solution:
We need t first count the amount of work done in 2 days by X
X can do a piece of work in 20 days
So, in 2 days he can do = 1/20 * 2 = 1/10

Amount of work done by X, Y and Z in 1 day = 1/20 + 1/30 + 1/60 = 1/10
So, amount of work done in 3 days = 1/10 + 1/10 = 1/5
So the work will be completed in 3 * 5 = 15 days.