Cognizant Placement Papers – 01

1. There are forty students in a class out of which there are 14 who are taking Maths and 29 who are taking Computer. What is the probability that a randomly chosen student from this group is taking only the Computer class?
a) 40%
b) 55%
c) 65%
d) 70%

Answer: 60%

Solution:
There are in total of 40 students. 14 are taking Maths and 29 are taking calculus. Therefore there have to be 3 students who are taking both the classes. So, 29 – 3 = 26 students are taking only Computer. So probability = 26/40 = 13/20 = 65%

2. Find the number, the second digit of which is smaller than its first digit by 4, and if the number was divided by the digit's sum, the quotient would be 7.
a) 51
b) 62
c) 73
d) None of these

Answer: d) None of these

Solution:
If we consider the number 84, then we get 8 – 4 = 4 and when the sum of digits that is 12 divides the number 84, we get 7.

3. If all 6s get inverted and become 9s, between 1 and 100 then by how much will the sum of all numbers change including both?
a) 300
b) 330
c) 333
d) None of these

Answer: b) 330

Solution:
For the 6 at the unit place:
When the digits are changed to 9, each value will increase by 3. Since there are 10 such

numbers, so total increase = 10 * 3 = 30
For the 6 at 10's place:
When the digits are changed to 9, each value will increase by 30. Since there are 10 such numbers, so total increase = 10 * 30 = 300
So the total increase will be 30 + 300 = 330

4. Rajesh and Prabhu went to a bookshop. Rajesh purchased 5 pens, 3 notebooks and 9 pencils and used up all her money. Prabhu purchased 6 pens, 6 notebooks and 18 pencils and paid 50% more than what Rajesh paid. What % of the Rajesh money was spent on pens?
a) 12.5
b) 62.5
c) 75
d) Cannot be determined

Answer: a) 12.5

Solution:
Let the amount spent by Rajesh be 'x'
According to the question,
5 pen + 3 notebooks + 9 pecils = x
and
6 pens + 6 notebooks + 18 pencils = 1.5x
By solving both the equations we get,
pens = 0.125x = 12.5%

5. In a group of persons travelling in a bus, 6 persons can speak Tamil, 15 can speak Hindi and 6 can speak Gujarati. In that group, none can speak any other language. If 2 persons in the group can speak two languages and one person can speak all the three languages, then how many persons are there in the group?
a) 21
b) 22
c) 24
d) 23

Answer: d) 23

Solution:
Assuming the two persons who can speak two languages be Hindi and Tamil and the third person speaks all the three languages.
Therefore, the number of people who can speak Tamil is 6. Only Tamil = 6 – 2 – 1 = 3
Therefore, the number of people who can speak Hindi is 15. Only Hindi = 15 – 2 – 1 = 12
Therefore, the number of people who can speak Gujarati is 6. Only Gujarati = 6 – 1 = 5
Thus the number of persons who can speak only one language is 3 + 12 + 5 = 20
Given,
The number of persons who can speak two languages is 2
The number of people who speak all three languages is 1
Therefore the answer is 23.

6. There are 2 trucks facing each other at a distance of 500 cm from each other. Each truck moves forward by 100 cm at a speed of 50 cm/s and then moves backwards by 50 cm at a speed of 25 cm/s. How long will they take to collide?
a) 12 sec
b) 16 sec
c) 13 sec
d) 14 sec

Answer: d) 14 sec

Solution:
If we observe the series carefully running from time = 2 sec and hence,
Moving forward:
At 2 secs each truck will move to a distance of 100cms
Moving backwards:
At 4 secs each truck will move to a distance of 50cms
Moving forward:
At 6 secs each truck will move to a distance of 150cms
Moving backwards:
At 8 secs each truck will move to a distance of 100cms
Moving forward:
At 10 secs each truck will move to a distance of 200cms
Moving backwards:
At 12 secs each truck will move to a distance of 150cms
Moving forward:
At 14 secs each truck will move to a distance of 250cms and in all 500 cms that are the point they must collide.

7. What is the greatest number that will divide 964, 1238 and 1400 and leave a remainder of 41, 31 and 51 respectively?
a) 71
b) 58
c) 64
d) 79

Answer: a) 71

Solution:
To reach to the solution we just need to find the HCF of (964 – 41), (1238 – 31), (1400 – 51) = 923, 1207, 1349
The HCF of 923, 1207 and 1349 = 71

8. The average temperature of Monday, Tuesday and Wednesday were 37°C and on Tuesday, Wednesday and Thursday was 34°C. If the temperature on Thursday was 4/5 th of that of Monday, then what was the temperature on Thursday?
a) 36 °C

b) 36.5 °C
c) 34 °C
d) 35.5 °C

Answer: a) 36 °C

Solution:
According to the question,
Monday + Tuesday + Wednesday = 37 °C
Tuesday + Wednesday + Thursday = 34 °C
Thursday = 4/5 of Monday
On solving the first two equations and substituting the values from the third condition we get the temperature of Thursday = 36 °C

9. There are 6 cities, and every city is connected to each other. How many different routes can one trace from A to B, such that no city is touched more than once in any one route?
a) 72
b) 65
c) 60
d) 48

Answer: b) 65

Solution:
There must be 1 direct route.
There are 4 ways to cover 1 city
There are 4 * 3 = 12 ways to cover 2 cities
There are 4 * 3 * 2 ways to cover 3 cities
There are 4 * 3 * 2 * 1 ways to cover 4 cities
Total ways = 65 ways

10. A secret can be said by only 2 persons in 5 minutes. The same person tells the secret to 2 more persons and so on. How long will take to tell it to tell 768 persons?
a) 500 min
b) 50 min
c) 47.5 min
d) 49 min

Answer: c) 47.5 min

Solution:
One person telling to 2 means he takes 2.5 min to tell the secret to 1 person,
So 1 person telling the truth to another 2 people and the next two telling the truth to the next two who in turn are telling another 2 people and so on…
Therefore a series is formed of 1 to 2, 2 to 4, 4 to 8, 8 to 16 and so on…
Therefore a series of 1, 2, 4, 8, 16, 32,…, 512
Till 512 it would take

Till this will take 45 minutes and now these people i.e., 256 will be telling the truth to only 1 of the total person will be 768,
Therefore, 45 + 2.5 = 47.5 min