Tata Consultancy Services Placement Paper

TCS Placement Paper Questions Held on 11 February 2011 JMIT, Radaur

Written Test 30 Questions

Time: 80 Minutes

1. There are two boxes, one containing 10 red balls and the other containing 10 green balls. You are allowed to move the balls between the boxes so that when you choose a box at random and a ball at random from the chosen box, the probability of getting a red ball is maximized. This maximum probability is

a)3/4

b)14/19

c)37/38

d)1/2

Ans.: b (probability of selecting a box=1/2.now keep 1 red ball in box a and trAns.fer 9 red balls to b,so probability=1/2(1+9/19)

2 On the planet Oz, there are 8 days in a week- Sunday to Saturday and another day called Oz day. There are 36 hours in a day and each hour has 90 min while each minute has 60 sec. As on earth, the hour hand covers the dial twice every day.

Find the approximate angle between the hands of a clock on Oz when the time is 9:40 am.

a. 251

b.111

c.29

d.89

Ans.: c

For 12:40 am Ans.. z 89

3 Given a collection of points P in the plane, a 1-set is a point in P that can be separated from the rest by a line; i.e. the point lies on one side of the line while the others lie on the other side. The number of 1-sets of P is denoted by $n1(P)$. The maximum value of $n1(P)$ over all configurations P of 9 points in the plane is

a.10

b.9

c.3

d.5

Ans.: b (m nt sure)

4.Planet four firesides in 4-dimensional space and thus the currency used by its residents are 3-dimensional objects. The rupee notes are cubical in shape while their coins are spherical. However the coin minting machinery lays out some stipulations on the size of the coins.The diameter of the coins should be at least 64mm and not exceed 512mm.

Given a coin, the diameter of the next larger coin is at least 50% greater.

The diameter of the coin must always be an integer.

You are asked to design a set of coins of different diameters with these requirements and your goal is to design as many coins as possible. How many coins can you design?

5

9

6

8

Ans.: c(hint:first coin has length 64 mm,2nd coin diamter length 64+(50/100)*64,3rd coin 2nd coins diameter length+50/100 of 2nd coinds lenght,in that way go till you reach maximum diamter length 512!now think!

5. The pacelength P is the distance between the rear of two consecutive footprints. For men, the formula, $n/P = 144$ gives an approximate relationship between n and P where, n = number of steps per minute and P = pacelength in meters. Bernard knows his pacelength is 164cm. The formula applies to Bernard's walking. Calculate Bernard's walking speed in kmph.

23.62

11.39

8.78

236.16

Ans.:a

6. Hare in the other. The hare starts after the tortoise has covered 1/3 of its distance and that too leisurely3. A hare and a tortoise have a race along a circle of 100 yards diameter. The tortoise goes in one direction and the. The hare and tortoise meet when the hare has covered only 1/5 of the distance. By what factor should the hare increase its speed so as to tie the race?

Ans.. 4.40

7.How many 4 digit numbers can be formed using the digits 1, 2,3,4 ,5 (but with repetition) that are divisible by 4?

Ans.. 5^3

8. Ferrari S.P.A is an Italian sports car manufacturer based in Maranello, Italy. Founded by Enzo Ferrari in 1928 as Scuderia Ferrari , the company sponsored drivers and manufactured race cars before moving into production of street-legal vehicles in 1947 as Feraari S.P.A. Throughout its history, the company has been noted for its continued participation in racing, especially in Formula One where it has employed great success .Rohit once bought a Ferrari . It could go 4 times as fast as Mohan's old Mercedes. If the speed of Mohan's Mercedes is 46 km/hr and the distance traveled by the Ferrari is 953 km, find the total time taken for Rohit to drive that distance.

a)20.72

b) 5.18

c)238.25

d)6.18

Ans.:(b)(time=distance/speed=953/4*46)

9. There are 6 beer bottle nd one is poisoned. we have mice who will die within 14 hrs after drinkin poisned beer. In 24 hrs we have to find poisoned beer bottle. How many no of mice we require to find out poisoned bottle.

options

a) 6

b) 4

c) 3

d) 1

10. keyword: Alok Bhanu, stack of 20 coins. i move can play. dat z 1th move meAns. to put top coin 1 postion below. gold coin. initialy gold coin is at 3rd position from top. if itz player turns nd player brings gold coin to the top then player z winner. alok starts. which of the following is true.

a) alok must play 1th move to win.

b) alok must play 0th move to win

c) alok has no wining strategy

Ans. (a)

11 1/3 rd of a number is more 3 than the 1/6th of a number then find the number?

Ans.:18

12. After the typist writes 12 letters and addresses 12 envelopes, she inserts the letters randomly into the envelopes (1 letter per envelope). What is the probability that exactly 1 letter is inserted in an improper envelope?

a)0

b)12/212

c)11/12

d)1/12

Ans.:a (since 1 letter is in improper envelope other would definitely be in improper envelope)

13.A hollow cube of size 5 cm is taken, with a thickness of 1 cm. It is made of smaller cubes of size 1 cm. If 4 faces of the outer surface of the cube are painted, totally how many faces of the smaller cubes remain unpainted?

800

500

488

900

Ans.:side of cube = 5 cm

its thichness = 1 cm

so volume of outer cube = 5*5*5

volume of inner cube = 3*3*3

volume of the hollow cube = 5*5*5 – 3*3*3 = 98

so total no of small cubes of the size 1 cm = 98/1*1*1 = 98

we know a cube has 6 faces so total no of face = 98*6 = 588

one surface of outer cube contains a total of 25 surface of smaller cube , so when 4 surface of outer cube is painted total no of surface of small cubes i.e supposed to be painted is 4*25 = 100

so the total no of surfaces of small cube that will be remained unpainted is 588-100 = 488

no of faces remain unpainted: 588-(25* no faces painted)

14. 10 suspects are rounded by the police and questioned about a bank robbery. Only one of them is guilty. The suspects are made to stand in a line and each person declares that the person next to him on his right is guilty. The rightmost person is not questioned. Which of the following possibilities are true?

A. All suspects are lying or the leftmost suspect is innocent.

B. All suspects are lying and the leftmost suspect is innocent .

A only

B only

Neither A nor B

Both A and B

15. A lady has fine gloves and hats in her closet- 18 blue, 32 red, and 25 yellow. The lights are out and it is totally dark. In spite of the darkness, she can make out the difference between a hat and a glove. She takes out an item out of the closet only if she is sure that if it is a glove. How many gloves must she take out to make sure she has a pair of each color?

a)50 b)8 c)60 d)42

Ans.:60

There can be lots of logic for this, but approach the simplest one so that we approach to one of the solutions. Suppose the lady first picks 32 Red gloves, and then 24 Yellow gloves. The

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next pair she pics will be one Yellow and One Blue which does not make a pair. The next two will be blue gloves. So she make a total of 32+24+1+1+2 = 60 picks.

16. One day Rapunzel meets Dwarf and Byte in the Forest of forgetfulness. She knows that Dwarf lies on Mondays, Tuesdays and Wednesdays, and tells the truth on the other days of the week. Byte, on the other hand, lies on Thursdays, Fridays and Saturdays, but tells the truth on the other days of the week. Now they make the following statements to Rapunzel – Dwarf: Yesterday was one of those days when I lie. Byte: Yesterday was one of those days when I lie too. What day is it?

(a) Thursday

(b) Tuesday

(c) Sunday

(d) Monday

Ans.:

Thursday

Explanation :

On Thursday, Dwarf says truth. i.e Yesterday (Wednesday) was one of those days when I lies. Its true.

On the other hand, On Thursday, Byte lies. i.e Yesterday (Wednesday) was one of those days when I lie too. Its a lie…. So both satisfied. Hence its Thursday.

17 The citizens of planet nigiet are 5 fingered and have thus developed their decimal system in base 8.

A certain street in nigiet contains 1000 (in base 5) buildings numbered 1 to 1000.

How many 3s are used in numbering these buildings? Express result in terms of base 10.

a) 54 b)64 c) 75 d) 100

4. keywords: alok, bhanu, want to maximize and other want to minimize.

15+X*Y-Z

For these type of ques, remember this thumb rule..

X*Y-Z=18

X+Y-Z=11

X-Y-Z=2

Ans.: 15+18=33

18. The IT giant Tirnop has recently crossed a head count of 150000 and earnings of $7 billion. As one of the forerunners in the technology front, Tirnop continues to lead the way in products and services in India. At Tirnop, all programmers are equal in every respect. They receive identical salaries Ans. also write code at the same rate.Suppose 12 such programmers take 12 minutes to write 12 lines of code in total. How long will it take 72 programmers to write 72 lines of code in total?

Ans. 12 min

prgrmr*min/ loc= prgmr *min/ loc

This question was also repeated thrice.

a) no of Programmer

b) no lines of codes

c) how much time they will take.

19. On a sheet of paper, there are 40 statements. Each n statement states that "Atleast n number of statements on this sheet is false". Then which of the following is true.

Ans. first 20 statements are true and last 20 are false.

This question was also repeated thrice.

a) Atleast wid false Ans. first 20 r true and last 20 r false..

b) Exactly wid true Ans. 39th z true nd rest r false

c) Atmost wid true or false Ans. all statements r true

20.There are 6 circles on a diagonal of square such that their centre lie on diagonal. Consider that radius of each circle is equal. Find the ratio between side of square and radius of circle.

10r+ 2sqrt(2)r= sqrt(2)a

find a/r.