TCS Placement Papers with Answers(Technical Round)

1. For the FIFA world cup, Paul the octopus has been predicting the winner of each match with amazing success. It is rumored that in a match between 2 teams A and B, Paul picks A with the same probability as A's chances of winning.
Let's assume such rumors to be true and that in a match between X and Y, X the stronger team has a probability of 2/3 of winning the game. What is the probability that Paul will correctly pick the winner of the X-Y game?

Ans. (2/3)^2+(1-2/3)^2

2. A circular dart board of radius 1 foot is at a distance of 20 feet from you. You throw a dart at it and it hits the dartboard at some point X in the circle. What is the probability that X is closer to the center of the circle than the periphery?

Ans. pi(r/2)^2/pi(r)^2

3. On planet Corba, a solar blast has melted the ice caps on its equator. 8 years after the ice melts, tiny plantoids called echina start growing on the rocks. echina grows in the form of a circle and the relationship between the diameter of this circle and the age of echina is given by the formula d = 4 * v (t - 8) for t = 8, where d represents the diameter in mm and t the number of years since the solar blast. If you record the radius of some echina at a particular spot as 8mm. How many years back did the solar blast occur?

Ans. simply put d=2*r

4. Given 3 lines in the plane such that the points of

intersection form a triangle with sides of length 20, 20 and 30, What is the number of points equidistant from all the 3 lines?

Ans. 4 for 3line
if question say line segment then answer will be 1.

5. 36 people {a1, a2, ..., a36} meet and shake hands in a circular fashion. In other words, there are totally 36 handshakes involving the pairs, {a1, a2}, {a2, a3}, ..., {a35, a36}, {a36, a1}. Find the size of the smallest set of people such that the rest have shaken hands with at least one person in the set.

Ans. simply put n/3=36/3=12

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

Ans. 0

7. 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). Find the maximum value of n1(P) over all configurations P of 19 points in the plane.

Ans. 19

8. A sheet of paper has statements numbered from 1 to 35. For all values of n from 1 to 35, statement n says "At most n of the statements on this sheet are false". Which statements are true and which are

false?

Ans. For this type f question
At least-half f the statements are true and remains false.
Exactly-n-1 statements are true and remains false
Almost-all statement r true. In my set this type f question. repeated 3 times.

9. A and B play the following min-max game. Given the expression
N = 12 + X*(Y - Z)
where X, Y and Z are variables representing single digits (0 to 9), "A" would like to maximize N while "B" would like to minimize it. Towards this end, "A" chooses a single digit number and "B" substitutes this for a variable of her choice (X, Y or Z). "A" then chooses the next value and "B", the variable to substitute the value. Finally "A" proposes the value for the remaining variable. Assuming both play to their optimal strategies, the value of N at the end of the game would be

Ans. x-y-z=2
x+y-z=11
x*(y-z)=x*(y+z)=18

10. 1/3 of a number is 6 more than 1/6 of the same number. What is the number?

Ans. 36

11. Two pipes A and B fill at A certain rate B is filled at 10,20,40,80,. If 1/16 of B if filled in 17 hours what time it will take to get completely filled.

Ans. Simply find the factor of 16 count the no. of 2 &

add them with 17.

12. Alice and Bob play the following coins-on-a-stack game. 20 coins are stacked one above the other. One of them is a special (gold) coin and the rest are ordinary coins. The goal is to bring the gold coin to the top by repeatedly moving the topmost coin to another position in the stack. Alice starts and the players take turns. A turn consists of moving the coin on the top to a position i below the top coin (0 = i = 20). We will call this an i-move (thus a 0-move implies doing nothing). The proviso is that an i-move cannot be repeated; for example once a player makes a 2- move, on subsequent turns neither player can make a 2-move. If the gold coin happens to be on top when it's a player's turn then the player wins the game. Initially, the gold coins the third coin from the top

Ans. In order 2 win 1 moves at 1st.

13. 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 inspite 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 colour?

50
8
60
42

Ans. highest +middle +2

14. 20 people meet and shake hands. The maximum

number of hand shakes possible if there is to be no 'cycle' of handshakes is(a cycle of handshake is a sequence of people a1,a2, ...ak) such that people(a1,a2),(a2,a3)...(a(k-1),ak),(a2,a1) shake hand is

Ans. for cyclic-(n-1)
for non-cyclic-(nc2)

15. 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 answer also write code at the same rate. Suppose 12 such programmers take 12 minutes to write 12 lines of code in total. How many lines of code can be written by 72 programmers in 72 minutes?

Ans. For this types if question ask to find no. f programmer & no. f minute simply put the first digit i.e. 12 n this question but if ask to find no. f line using=(12*72*72)/(12*12) in my set this come 3 times.

16. if there are 30 cans out of them one is poisoned if a person tastes very little he will die within 14 hours so if there are mice to test and 24 hours, how many mices are required to find the poisoned can?

Ans. I don't know exactly but it may be 1