

**(Paper) Latest TCS Fresher Job Interview Paper Pattern 12, January 2011**

Latest TCS Fresher Job Interview Paper

1. Alok and Bhanu play the following min-max game. Given the expression  $N=40+X+Y-Z$ , where  $X$ ,  $Y$  and  $Z$  are variables representing single digits (0 to 9), Alok would like to maximize  $N$  while Bhanu would like to minimize it. Towards this end, Alok chooses a single digit number and Bhanu substitutes this for a variable of her choice ( $X$ ,  $Y$  or  $Z$ ). Alok then chooses the next value and Bhanu, the variable to substitute the value. Finally Alok 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

- (a) 49
- (b) 51
- (c) 31
- (d) 58

2. 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 and also write code at the same rate. Suppose 14 such programmers take 14 minutes to write 14 lines of code in total. How long will it take 5 programmers to write 5 lines of code in total ?

- (a) 19
- (b) 5
- (c) 14
- (d) 70

3. 14 people meet and shake hands. The maximum number of handshakes possible if there is to be no 'cycle' of handshakes is (A cycle of handshakes is a sequence of people  $a_1, a_2, \dots, a_k, k > 2$  such that the pairs  $\{a_1, a_2\}, \{a_2, a_3\}, \dots, \{a_{k-1}, a_k\}, \{a_k, a_1\}$  shake hands).

- (a) 11
- (b) 12
- (c) 10
- (d) 13

4. 45 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 the suspects are lying. B. The leftmost suspect is guilty. C. The rightmost suspect is guilty.

- (a) A only
- (b) A and C
- (c) B only
- (d) A and B

5. The dynamics of crowd behaviour are hard to study because usually people are not reliable witnesses of their own behaviour. Now consider 4 people standing in the queue of a supermarket. You want to predict their behaviour based on their age group. You get to know from the supermarket records that their average age 4 years ago was 43 years. After a while, another person joins the queue and the present average of all the 5 is 40 years. The present age of the last person in the queue is :

- (a) 28 years
- (b) 12 years
- (c) 32 years
- (d) 24 years

6. One day Snow-white meets Pal and Unicorn in the Fairyland. She knows the Pal lies on Mondays, Tuesdays and Wednesdays, and tells the truth on the other days of the week. Unicorn, 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 Snow-white - Pal: Yesterday was one of those days when I lie. Unicorn: Yesterday was one of those days when I lie too. What day is it?

- (a) Tuesday
- (b) Monday
- (c) Thursday
- (d) Sunday

7. The Barnes Foundation in Philadelphia has one of the most extra-ordinary and idiosyncratic collections in French impressionist art. Dr. Barnes who put together this collection has insisted that the paintings be hung in a particular manner specified by him at a museum designed by the French architect Paul Philippe Cret who also designed the Rodin Museum. The museum has, say, seven galleries - Eugene Boudin, Cassatt, Boudin, Forain, Gonzales, Manet and Monet. Visitors reach the main Eugene Boudin by an elevator, and they can enter and leave the exhibition only through Eugene Boudin gallery. Once inside, visitors are free to move as they choose. The following list includes all of the doorways that connect the seven galleries: There is a doorway between Eugene Boudin and Cassatt, a doorway between Eugene BoudinandBoudin, and a doorway between Eugene Boudin and Gonzales galleries. There is a doorway between Cassatt and Boudin galleries. There is a doorway between Gonzales and Forain and a doorway between Gonzales and Manet galleries. There is a doorway between Manet and Monet galleries. Which of the following rooms CANNOT be the third gallery that any visitor enters ?

- (a) Monet
- (b) Boudin
- (c) Forain
- (d) Cassatt

8. Mr. Beans visited a magic shop and bought some magical

marbles of different colours along with other magical items. While returning home whenever he saw a coloured light, he took out marbles of similar colours and counted them. So he counted the pink coloured marbles and found that he has bought 25 of them. Then he counted 14 green marbles and then 21 yellow marbles. He later counted 30 purple coloured marbles with him. But when he reached a crossing, he looked at a red light and started counting red marbles and found that he had bought 23 Red marbles. As soon as he finished counting, it started raining heavily and by the time he reached home he was drenched. After reaching home he found that the red, green and yellow marbles had magically changed colours and became white, while other marbles were unchanged. It will take 1 day to regain its colours, but he needs to give atleast one pair of marbles to his wife now. So how many white marbles must he choose and give to his wife so as to ensure that there is atleast one pair of red, yellow and green marbles ?

- (a) 46
- (b) 35
- (c) 29
- (d) 48

9. A greengrocer was selling watermelon at a penny each, chickoos at 2 for a penny and peanuts at 3 for a penny. A father spent 7p and got the same amount of each type of fruit for each of his three children, Jane, Joe and Jill. Jane is three years older than Jill and Joe is exactly half the age of Jane and Jill together. What did each child get ?

- (a) 1 watermelon, 3 chickoos, 2 peanuts
- (b) 1 watermelon, 1 chickoo, 1 peanut
- (c) 1 watermelon, 2 chickoos, 2 peanuts
- (d) 1 watermelon, 2 chickoos, 1 peanut

10. Given 3 lines in the plane such that the points of intersection form a triangle with sides of length 20, 20 and 20, the number of points equidistant from all the 3 lines is

- (a) 4
- (b) 3
- (c) 0
- (d) 1

11. 33 people  $\{a_1, a_2, \dots, a_{33}\}$  meet and shake hands in a circular fashion. In other words, there are totally 33 handshakes involving the pairs,  $\{a_1, a_2\}, \{a_2, a_3\}, \dots, \{a_{32}, a_{33}\}, \{a_{33}, a_1\}$ . Then the size of the smallest set of people such that the rest have shaken hands with at least one person in the set is

- (a) 10
- (b) 11
- (c) 16
- (d) 12

12. Consider two vessels, the first containing one liter of water and the second containing one liter of pepsi. Suppose

you take one glass of water out of the first vessel and pour it into the second vessel. After mixing you take one glass of the mixture from the second vessel and pour it back into the first vessel. Which one of the following statements holds now?

- (a) None of the statements holds true.
- (b) There is less Pepsi in the first vessel than water in the second vessel.
- (c) There is more Pepsi in the first vessel than water in the second vessel.
- (d) There is as much Pepsi in the first vessel as there is water in the second vessel.

13. Amok is attending a workshop 'How to do more with less' and today's theme is Working with fewer digits. The speakers discuss how a lot of miraculous mathematics can be achieved if mankind (as well as womankind) had only worked with fewer digits. The problem posed at the end of the workshop is 'How many 10 digit numbers can be formed using the digits 1, 2, 3, 4, 5 (but with repetition) that are divisible by 4?' Can you help Amok find the answer?

- (a) 1953125
- (b) 781250
- (c) 2441407
- (d) 2441406

14. 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 Ghana and Bolivia, Ghana the stronger team has a probability of  $\frac{11}{12}$  of winning the game. What is the probability that Paul will correctly pick the winner of the Ghana-Bolivia game?

- (a) .92
- (b) .01
- (c) .85
- (d) .15

15. There are two boxes, one containing 39 red balls and the other containing 26 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) .60
- (b) .50
- (c) .80
- (d) .30

16. After the typist writes 40 letters and addresses 40 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)  $1 - \frac{1}{40}$

- (b)  $1/40$
- (c)  $1/401$
- (d) 0

17. A hare and a tortoise have a race along a circle of 100 yards diameter. The tortoise goes in one direction and the hare in the other. The hare starts after the tortoise has covered  $1/3$  of its distance and that too leisurely. The hare and tortoise meet when the hare has covered only  $1/4$  of the distance. By what factor should the hare increase its speed so as to win the race?

- (a) 4
- (b) 3
- (c) 12
- (d) 5.00

18. A sheet of paper has statements numbered from 1 to 20. For each value of  $n$  from 1 to 20, statement  $n$  says 'At least  $n$  of the statements on this sheet are true.' Which statements are true and which are false?

- (a) The odd numbered statements are true and the even numbered are false.
- (b) The first 13 statements are false and the rest are true.
- (c) The first 6 statements are true and the rest are false.
- (d) The even numbered statements are true and the odd numbered are false.

19. The question is followed by two statements, A and B. Answer the question using the following instructions: Choose 1: if the question can be answered by using one of the statements alone but not by using the other statement alone. Choose 2: if the question can be answered by using either of the statements alone. Choose 3: if the question can be answered by using both statements together but not by either statement alone. Choose 4: if the question cannot be answered on the basis of the two statements. Zaheer spends 30% of his income on his children's education, 20% on recreation and 10% on healthcare. The corresponding percentages for Sandeep are 40%, 25% and 13%. Who spends more on children's education? A" Zaheer spends more on recreation than Sandeep B: Sandeep spends more on healthcare than Zaheer.

- (a) 3
- (b) 2
- (c) 1
- (d) 4

20. Subha Patel is an olfactory scientist working for International Flavors and Fragrances. She specializes in finding new scents recorded and reconstituted from nature thanks to Living Flower Technology. She has extracted fragrance ingredients from different flowering plants into bottles labeled herbal, sweet, honey, anisic and rose. She has learned that a formula for a perfume is acceptable if and only if it does not violate any of the rules listed: If the perfume contains herbal, it must also contain honey and

there must be twice as much honey as herbal. If the perfume contains sweet, it must also contain anisic, and the amount of anisic must equal the amount of sweet. honey cannot be used in combination with anisic. anisic cannot be used in combination with rose. If the perfume contains rose, the amount of rose must be greater than the total amount of the other essence or essences used. Which of the following could be added to an unacceptable perfume consisting of two parts honey and one part rose to make it acceptable?

- (a) Two parts rose
- (b) One part herbal
- (c) Two parts honey
- (d) One part sweet

21. The citizens of planet Oz are 6 fingered and thus have developed a number system in base 6. A certain street in Oz contains 1000 buildings numbered from 1 to 1000. How many 3's are used in numbering these buildings? Express your answer in base 10.

- (a) 144
- (b) 54
- (c) 108
- (d) 36

22. Recent reports have suggested that sportsmen with decreased metabolic rates perform better in certain sports. After reading one such report, Jordan, a sportsperson from Arlington decides to undergo a rigorous physical training program for 3 months, where he performs Yoga for 3 hours, walks for 2 hours and swims for 1 hour each day. He says: I began my training on a Wednesday in a prime number month of 2008. I lost 1% of my original weight within the first 30 days. In the next two months combined, I lost 1 Kg. If he walks at 5 mph over a certain journey and walks back over the same route at 7 mph at an altitude of 200 meters, what is his average speed for the journey?

- (a) 5.83
- (b) 2.92
- (c) 6.00
- (d) 35.00

23. A schoolyard contains only bicycles and 4 wheeled wagons. On Tuesday, the total number of wheels in the schoolyard was 134. What could be possible number of bicycles?

- (a) 16
- (b) 15
- (c) 18
- (d) 14

24. A sheet of paper has statements numbered from 1 to 20. For all values of n from 1 to 20, statement n says: 'Exactly n of the statements on this sheet are false.' Which statements are true and which are false?

- (a) The even numbered statements are true and the odd numbered statements are false.

- (b) All the statements are false.
- (c) The odd numbered statements are true and the even numbered statements are false.
- (d) The second last statement is true and the rest are false.

25. There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one litre every hour in A, it gets filled up like 10, 20, 40, 80, 160 in tank B. (At the end of first hour, B has 10 litres, second hour it has 20, and so on). If tank B is  $\frac{1}{8}$  filled after 5 hours, what is the total duration required to fill it completely?

- (a) 9 hours
- (b) 7 hours
- (c) 3 hours
- (d) 8 hours

26. 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?

- (a) 900
- (b) 488
- (c) 500
- (d) 800

27. Alice and Bob play the following coins-on-a-stack game. 100 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 (for some  $I$  between 0 and 100). 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 coin is the third coin from the top. Then

- (a) In order to win, Alice's first move should be a 1-move.
- (b) In order to win, Alice's first move should be a 0-move.
- (c) Alice has no winning strategy.
- (d) In order to win, Alice's first move can be a 0-move or a 1-move.

28. The teacher is testing a student's proficiency in arithmetic and poses the following question:  $\frac{1}{2}$  of a number is 3 more than  $\frac{1}{6}$  of the same number. What is the number?

Can you help the student find the answer?

- (a) 9
- (b) 8

- (c) 10
- (d) 3

29. A circular dashboard of radius 1.0 foot is at a distance of 20 feet from you. You throw a dart at it and it hits the dartboard at some point  $Q$  in the circle. What is the probability that  $Q$  is closer to the center of the circle than the periphery?

- (a) 1.00
- (b) .75
- (c) .25
- (d) .50

30. A result of global warming is that the ice of some glaciers is melting. 13 years after the ice disappears, tiny plants, called lichens, start to grow on the rocks. Each lichen grows approximately in the shape of a circle. The relationship between the diameter of this circle and the age of the lichen can be approximated with the formula:  $d=10*(t - 13)$  for  $t > 13$ , where  $d$  represents the diameter of the lichen in millimeters, and  $t$  represents the number of years after the ice has disappeared. Using the above formula, calculate the diameter of the lichen, 45 years after the ice has disappeared.

- (a) 450
- (b) 437
- (c) 13
- (d) 320

31. 25 people meet and shake hands. The maximum number of handshakes possible if there is to be no 'cycle' of handshakes is (A cycle of handshakes is a sequence of people  $a_1, a_2, \dots, a_k, k > 2$  such that pairs  $\{a_1, a_2\}, \{a_2, a_3\}, \dots, \{a_{k-1}, a_k\}, \{a_1, a_k\}$  shake hands).

- (a) 24
- (b) 22
- (c) 21
- (d) 23

32. Consider two cans, the first containing one litre of water and the second containing one litre of Pepsi. Suppose you take one cup of water out of the first can and pour it into the second can. After mixing you take one cup of the mixture from the second can and pour it back into the first can. Which one of the following statements holds now?

- (a) There is less Pepsi in the first can than water in the second can.
- (b) There is more Pepsi in the first can than water in the second can.
- (c) None of the statements holds true.
- (d) There is as much Pepsi in the first can as there is water in the second can.

33. A greengrocer was selling orange at a penny each, olives at 2 for a penny and grapes at 3 for a penny. A



father spent 7p and got the same amount of each type of fruit for each of his three children, Jane, Joe, and Jill. Jane is three years older than Jill and Joe is exactly half the age of Jane and Jill together. What did each child get?

- (a) 1 orange, 2 olives, 2 grapes
- (b) 1 orange, 3 olives, 2 grapes
- (c) 1 orange, 1 olive, 1 grape
- (d) 1 orange, 2 olives, 1 grape

34. A sheet of paper has statements numbered from 1 to 20. For each value of  $n$  from 1 to 20, statement  $n$  says 'At least  $n$  of the statements on this sheet are true.' Which statements are true and which are false?

- (a) The even numbered statements are true and the odd numbered are false
- (b) The first 13 statements are false and the rest are true.
- (c) The first 6 statements are true and the rest are false.
- (d) The odd numbered statements are true and the even numbered are false.

35. 45 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 the suspects are lying. B. The leftmost suspect is guilty. C. The rightmost suspect is guilty.

- (a) A and C
- (b) A and B
- (c) A only
- (d) B only

36. Ferrari S.P.A. is an Italian sports car manufacturer base in Maranello , Italy. Founded by Enzo Ferrari in 1928 as Scuderia Ferrari, the company sponsored driver and manufactured race cars before moving into production of street - legal vehicles in 1947 as Ferrari S.p.A. sThroughout its history, the company has been noted for its continued participation in racing, especially in Formula One, where it has enjoyed great success. Rohit once brought a Ferrari. It could go 2 times as fast as Mohit's old Mercedes. If the speed of Mohit's Mercedes is 40 Km/hr and the distance traveled by the Ferrari is 913 Km, find the total time taken for Rohit to drive the distance.

- (a) 12 Hours
- (b) 22 Hours
- (c) 456 Hours
- (d) 11.41 Hours

37. The teacher is testing a student's proficiency in arithmetic and poses the following question:  $\frac{1}{3}$  of a number is 6 more than  $\frac{1}{6}$  of the same number. What is the number?

Can you help the student find the answer?

- (a) 35
- (b) 6
- (c) 37
- (d) 36

**38.** Recent reports have suggested that sportsmen with decreased metabolic rates perform better in certain sports. After reading one such report, Jordon, a sportsman from Arlington decides to undergo a rigorous physical training program for 3 months, where he performs Yoga for 3 hours, walks for 2 hours and swims for 1 hour each day. He says: I began my training on a Wednesday in a prime number month of 2008. I lost 1% of my original weight within the first 30 days. In the next two months combined, I lost 1 Kg. If he walks at 5 mph over a certain journey and walks back the same route at 8 mph at an altitude of 200 meters, what is his average speed for the journey?

- (a) 6.15
- (b) 3.08
- (c) 6.50
- (d) 26.67

**39.** The result of global warming is the ice of some glaciers is melting. 19 years after the ice disappears, tiny plants, called lichens, start to grow on the rock. Each lichen grows approximately in the shape of a circle. The relationship between the diameter of the circle and the age of the lichen can be approximated with the formula:  $d = 12 * (t - 19)$  for  $t > 19$ , where  $d$  represents the diameter of the lichen in millimeters, and  $t$  represents the number of years after the ice has disappeared. Using the above formula, calculate the diameter of the lichen, 32 years after the ice has disappeared.

- (a) 384
- (b) 156
- (c) 19
- (d) 365

**40.** There are two boxes, one contains 12 red balls and the other containing 47 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) .59
- (b) .20
- (c) .10
- (d) .50

**41.** The citizens of planet Oz are fingered and thus have developed a number system in base 6. A certain street in Oz contains 1000 buildings numbered from 1 to 1000. How many 2's are used in numbering these buildings? Express your answer in base 10.

- (a) 144

- (b) 24
- (c) 108
- (d) 36

**42.** The question is followed by two statements, A and B. Answer the question using the following instructions: Choose1: if the question can be answered by using one of the statements alone but not by using the other statement alone. Choose2: if the question can be answered by using either of the statements alone. Choose3: if the question can be answered by using both statements together but not by either statement alone. Choose4: if the question cannot be answered on the basis of the two statements. Zayed spends 30% of his income on his children's education, 20% on recreation and 10% on healthcare. The corresponding percentage for Sandeep are 40%, 25% and 13%. Who spends more on children's education? A: Zayed spends more on recreation than Sandeep B: Sandeep spends more on healthcare than Zayed.

- (a) 4
- (b) 3
- (c) 2
- (d) 1

**43.** The question is followed by two statements, A and B. Answer the question using the following instructions: Choose1: if the question can be answered by using one of the statements alone but not by using the other statement alone. Choose2: if the question can be answered by using either of the statements alone. Choose3: if the question can be answered by using both statements together but not by either statement alone. Choose4: if the question cannot be answered on the basis of two statements. Tarun is standing 2 steps to the left of a green mark and 3 steps to the right of a black mark. He tosses a coin. If it comes up heads, he moved one step to the right, otherwise he moves one step to the left. He keeps doing this until he reaches one of the two marks, and then he stops. At which mark does he stop? A: he stops at 21 coin tosses. B: he obtains three more tails than heads.

- (a) 1
- (b) 3
- (c) 4
- (d) 2

**44.** There are two water tank A and B, A is much smaller than B. While water fills at rate of one liter every hour in A, it gets filled up like 10, 20, 40, 80, 160..in tank B. (At the end of first hour, B has 10 litres, second hour it has 20, and so on). If tank B is  $\frac{1}{8}$  filled after 7 hours, what is the total duration required to fill it completely?

- (a) 10 hours
- (b) 9 hours
- (c) 11 hours
- (d) 3 hours

**45.** A sheet of paper has statements numbered from 1 to 10.

For all values of  $n$  from 1 to 10, statement  $n$  says:  
'Exactly  $n$  of the statements on this sheet are false.'  
Which statements are true and which are false?

- (a) The even numbered statements are true and the odd numbered statements are false.
- (b) The second last statement is true and the rest are false.
- (c) The odd numbered statements are true and the even numbered statements are false.
- (d) All the statements are false.

46. Alok is attending a workshop 'How to do more with less' and today's theme is working with fewer digits. The speakers discuss how a lot of miraculous mathematics can be achieved if mankind (as we as womankind) had only worked with fewer digits. The problem posed at the end of the workshop is 'How many 6 digit numbers can be formed using the digits 1,2,3,4,5, (but with repetition) that are divisible by 4?' Can you help Alok find the answer?

- (a) 3906
- (b) 3907
- (c) 3125
- (d) 1250

47. The dynamics of crowd behavior are hard to study because usually people are not reliable witness of their own behaviour. Now consider 4 people standing in the queue of a supermarket. You want to predict their behaviour based on their age group. You get to know from the supermarket records that their average age 3 years ago was 48 years. After a while, another person joins the queue and the present average of all the 5 is 46 years. The present age of the last person in the queue is:

- (a) 38 years
- (b) 35 years
- (c) 41 years
- (d) 26 years

48. Alice and Bob play the following coins-on-a-stack game. 100 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 of the 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 (for some  $i$  between 0 and 100). We will call this as  $i$ -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 the top when it's a player's turn then the player wins the game. Initially, the gold coin is the third coin from the top. Then

- (a) In order to win, Alice's first move should be a 1-move.
- (b) Alice has no winning strategy.
- (c) In order to win, Alice's first move can be a 0-move or a

1-move.

(d) In order to win, Alice's first move should be a 0-move.

49. There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one litre every hour in A, it gets filled up like 10, 20, 40, 80, 160 in tank B. (At the end of first hour, B has 10 litres, second hour it has 20, and so on). If tank B is  $\frac{1}{16}$  filled after 16 hours, what is total duration required to fill it completely?

(a) 19 hours

(b) 20 hours

(c) 4 hours

(d) 21 hours

50. Consider two tumblers, the first containing one litre of milk and the second containing one litre of coffee. Suppose you take one glass of milk out of the first tumbler and pour it into the second tumbler. After mixing you take one glass of the mixture from the second tumbler and pour it back into the first tumbler. Which one of the following statements holds now?

(a) None of the statements holds true.

(b) There is less coffee in the first tumbler than milk in the second tumbler.

(c) There is as much coffee in the first tumbler as there is milk in the second tumbler.

(d) There is more coffee in the first tumbler than milk in the second tumbler.

51. A circular dashboard of radius 2.0 foot is at a distance of 20 feet from you. You throw a dart at it and it hits the dashboard at some point Q in the circle. What is the probability that Q is closer to the center of the circle than the periphery?

(a) .75

(b) 1.00

(c) .25

(d) .50

52. A sheet of paper has statements numbered from 1 to 10. For all values of n from 1 to 10, statement n says: 'Exactly n of the statements on this sheet are false.' Which statements are true and which are false?

(a) All the statements are false.

(b) The second last statement is true and the rest are false.

(c) The even numbered statements are true and the odd numbered statements are false.

(d) The odd numbered statements are true and the even numbered statements are false.

53. Consider two vessels, the first containing one litre of oil and the second containing one litre of coffee. Suppose you take one spoon of oil out of the first vessel and pour

it into the second vessel. After mixing you take one spoon of mixture from the second vessel and pour it back into the first vessel. Which one of the following statements holds now?

- (a) None of the statements holds true.
- (b) There is less coffee in the first vessel than oil in the second vessel.
- (c) There is more coffee in the first vessel than oil in the second vessel.
- (d) There is as much coffee in the first vessel as there is oil in the second vessel.

54. There are two water tanks A and B, A is much smaller than B. While water fills at the rate of one litre every hour in A, it gets filled up like 10, 20, 40, 80, 160 in tank B. (At the end of first hour, B has 10 litres, second hour it has 20, and so on). If tank B is  $\frac{1}{32}$  filled after 19 hours, what is total duration required to fill it completely?

- (a) 5 hours
- (b) 23 hours
- (c) 24 hours
- (d) 25 hours

55. The question is followed by two statements, A and B. Answer the question using the following instructions: Choose1: if the question can be answered by using one of the statements alone but not by using the other statement alone. Choose2: if the question can be answered by using either of the statements alone. Choose3: if the question can be answered by using both statements together but not by either statement alone. Choose4: if the question cannot be answered on the basis of two statements. Zayed spends 30% of his income on his children's education, 20% on recreation and 10% on healthcare. The corresponding percentage for Sandeep are 40%, 25% and 13%. Who spends more on children's education? A: Zayed spends more on recreation than Sandeep B: Sandeep spends more on healthcare than Zayed.

- (a) 1
- (b) 3
- (c) 4
- (d) 2

56. The question is followed by two statements, A and B. Answer the question using the following instructions: Choose1: if the question can be answered by using one of the statements alone but not by using the other statement alone. Choose2: if the question can be answered by using either of the statements alone. Choose3: if the question can be answered by using both statements together but not by either statement alone. Choose4: if the question cannot be answered on the basis of two statements. Tarak is standing 2 steps to the left of a yellow mark and 3 steps to the right of a grey mark. He tosses a coin. If it comes up heads, he moves one step to the right, otherwise he

moves one step to the left. He keeps doing this until he reaches one of the two marks, and then he stops. At which mark does he stop? A: he stops at 21 coin tosses. B: he obtains three more tails than heads.

- (a) 2
- (b) 3
- (c) 4
- (d) 1

57. A sheet of paper has statements numbered from 1 to 10. For all values of  $n$  from 1 to 10, statement  $n$  says: 'Exactly  $n$  of the statements on this sheet are false.' Which statements are true and which are false?

- (a) The even numbered statements are true and the odd numbered statements are false.
- (b) The second last statement is true and the rest are false.
- (c) The odd numbered statements are true and the even numbered statements are false.
- (d) All the statements are false.

58. There are two boxes, one contains 47 red balls and the other containing 46 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) .75
- (b) .50
- (c) .25
- (d) .51

59. Consider two vessels, the first containing one liter of ink and the second containing one liter of cola. Suppose you take one glass of ink out of the first vessel and pour it into the second vessel. After mixing you take one glass of mixture from the second vessel and pour it back into the first vessel. Which one of the following statements holds now?

- (a) There is as much cola in the first vessel as there is ink in the second vessel.
- (b) None of the statements holds true.
- (c) There is more cola in the first vessel than ink in the second vessel.
- (d) There is less cola in the first vessel than ink in the second vessel.