

(Paper) TCS Placement Paper Dated: 4th November 2010



TCS Placement Paper

A research lab in Chennai requires 100 mice and 75 sterilized cages for a certain set of laboratory experiments . To identify the mice, the lab has prepared labels with numbers 1 to 100 , by combining tags numbered 0 to 9. The SPCA requires that the tags be made of toxin-free material and that the temperature of the cages be maintained at 27 degree Celsius. Also , not more than 2 mice can be caged together and each cage must be at least 2 sq.ft in area. The 5 experiments to be conducted by lab are to be thoroughly documented and performed only after a round of approval by authorities. The approval procedure takes around 48 hours. How many times is the tag numbered '4' used by the lab in numbering these mice?

- a) 9
- b) 19
- c) 20
- d) 21

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 21 hours, what is the total duration required to fill it completely?

- a) 26 hrs
- b) 25 hrs
- c) 5 hrs
- d) 27 hrs

Q17) Consider two tumblers, the first containing one litre of coffee. Suppose you take one spoon of water out of the first tumbler and pour it into the second tumbler. After moving you take one spoon of the mixture from the second tumbler and pour it back into the first tumbler . Which one of the following statement holds now?

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

Francois Pachet , a researcher at Sony Computer Science laboratories is also a jazz musician. He decided to build a robot able to improvise like a pro. Named Continuator, the robot can duet with a live musician in real- time. It listens to a musical phrase and then computes a

complementary phrase with the same playing style. If the cost of making the robot is divided between and then computes a complementary phrase with the same playing style. If the cost of making the robot is divided between materials , labour and overheads in the ratio of 4:6:2.If the materials cost \$108. the cost of the robot is

- a) \$270
- b) \$324
- c) \$216
- d) \$ 648

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?

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

A man jogs at 6 mph over a certain journey and walks over the same route at 4 mph. What is his average speed for the journey?

- a) 4 mph
- b) 5 mph
- c) 2.4 mph
- d) 4.8 mph

Spores of a fungus, called late blight, grow and spread infection rapidly. These pathogens were responsible for the Irish potato famine of the mid-19th century. These seem to have attacked the tomato crops in England this year. The tomato crops have reduced and the price of the crop has risen up . The price has already gone up to \$45 a box from \$27 a box a month ago. How much more would a vegetable vendor need to pay to buy 27 boxes this month over what he would have paid last month?

- a) \$27
- b) \$ 18
- c) \$45
- d) \$ 486

Given a collection of 36 points P in the plane and a point equidistant from all points in P, which of the following are necessarily true?

A. The points in P lie on a circle.
B. The distance between any pair of points in P is larger than the distance between X and a point in P

- a) A and B
- b) Neither A nor B
- c) B only

d) A only

In the year 2002, Britain was reported to have had 4.3m closed - circuit television (CCTV) cameras - one for every 14 people in the country . This scrutiny is supposed to deter and detect crime. In one criminal case, the police interrogates two suspects . The ratio between the ages of the two suspects is 6:5 and the sum of their ages is 6:5 and the sum of their ages is 55 years. After how many years will the ratio be 8:7.?

- a) 11
- b) 6
- c) 10
- d) 5

Susan made a block with small cubes of 8 cubic cm volume to make a block 3 small cubes long, 9 small cubes wide and 5 small cubes deep. She realizes that she has used more small cubes than she really needed. She realized that she could have glued a fewer number of cubes together to lock like a block with same dimensions, if it were made hollow. What is the minimum number of cubes that she needs to make the block?

- a) 114
- b) 135
- c) 21
- d) 71