

## TCS PP2

### Mental Ability

**Q1)** A number when divided by D leaves a remainder of 8 and when divided by 3D leaves a remainder of 21 . What is the remainder left, when twice the number is divided by 3D?

- a) 13
- b) cannot be determined
- c) 3
- d) 42

**Q2)** One day Alice meets pal and byte in fairyland. She knows that pal 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 Alice – pal. 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) Monday
- d) Sunday

**Q3)** On planet korba, a solar blast has melted the ice caps on its equator. 9 years after the ice melts, tiny planetoids called echina start growing on the rocks. Echina grows in the form of circle, and the relationship between the diameter of this circle and the age of echina is given by the formula  
$$d = 4\sqrt{t-9} \text{ for } t \geq 9$$

where d represents the diameter in mm and t the number of years since the solar blast.

Jagan recorded the radius of some echina at a particular spot as 7mm. How many years back did the solar blast occur?

- a) 17
- b) 21.25
- c) 12.25
- d) 12.06

**Q4)** In the reading room of a library, there are 23 reading spots. Each reading spot consists of a round table with 9 chairs placed around it. There are some readers such that in each occupied reading spot there are different numbers of readers. If in all there are 36 readers, how many reading spots do not have even a single reader?

- a) 8
- b) None
- c) 16

d) 15

**Q5)** 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

**Q6)** A sheet of paper has statements numbered from 1 to 70. For all values of n from 1 to 70. Statement n says ' At least 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 are false.
- b) The odd numbered statements are true and the even numbered are false.
- c) The first 35 statements are true and the last 35 are false.
- d) The first 35 statements are false and the last 35 are false.

**Q7)** Middle – earth is a fictional land inhabited by Hobbits, Elves, dwarves and men. The Hobbits and the Elves are peaceful creatures who prefer slow, silent lives and appreciate nature and art. The dwarves and the men engage in physical games. The game is as follows . A tournol is one where out of the two teams that play a match, the one that loses get eliminated. The matches are played in different rounds where in every round , half of the teams get eliminated from the tournament. If there are 8 rounds played in a knock-out tournol how many matches were played?

- a) 257
- b) 256
- c) 72
- d) 255

**Q8)** 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

**Q9)** 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

**Q10)** 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 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

**Q11)** 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) 2.4 mph
- b) 4 mph
- c) 4.8 mph
- d) 5 mph

### Coding Questions (Most Important Previous Years)

If you are very new to coding, I would advise you to go through a playlist of mycodeschool (Youtube Channel) Data Structures and Algorithms and then start with

these questions.

**1, Prime Numbers upto N**

<https://www.tutorialgateway.org/c-program-to-print-natural-numbers-from-1-to-n/>

**2.Reverse Digits Of A Number**

<https://www.geeksforgeeks.org/write-a-program-to-reverse-digits-of-a-number/>

**3.Sum of Digits of a number**

<https://www.geeksforgeeks.org/program-for-sum-of-the-digits-of-a-given-number/>

**4.Palindrome String**

<https://www.geeksforgeeks.org/c-program-check-given-string-palindrome/>

**5.Reverse a string**

<https://www.geeksforgeeks.org/reverse-a-string-in-c-cpp-different-methods/>

**6.Check if an year is a leap year**

<https://www.geeksforgeeks.org/program-check-given-year-leap-year/>

**7.Swap Two Numbers**

<https://www.geeksforgeeks.org/c-program-swap-two-numbers/>

**8.LCM of two numbers**

<https://www.geeksforgeeks.org/program-to-find-lcm-of-two-numbers/>

**9.Checking Prime Numbers**

<https://www.geeksforgeeks.org/prime-numbers/>