

TCS- Aptitude Set-2

1) A, B, and C can together do some work in 72 days. A and B can together do two times as much work as C alone, and A and C together can do four times as much work as B alone. Find the time taken by C alone to do the whole work.

- a. 144 days
- b. 360 days
- c. 216 days
- d. 180 days

Answer: 216 days

The work done by A, B and C together = $A + B + C = 72$ days

$$A + B = 2C$$

$$A + C = 4B$$

On solving, we get $3C = 72$ days and hence $C = 72/3 = 216$ days

2) A and B completed certain work together in 5 days. Had A worked at twice his own speed and B half his own speed, it would have taken them 4 days to complete the job. How much time would it take for A alone to do the job?

- a. 10 days
- b. 20 days
- c. 25 days
- d. 15 days

Answer: 10 days

A and B can together do a work in 5 days = $A + B = 1/5$ days

$$2A + B/2 = 1/4$$

On solving these equations, we get $A = 1/10$ and hence A will take 10 days to complete the work all alone.

3) A sum of Rs 2387 is divided into three parts in such a way that one-fifth of the first part, one half of the second part and the fourth one and the third part are equal. Find the sum of five times the first part, three times the second part and four times the third part (in rupees).

- a. 9982

- b. 7812
- c. 9114
- d. 10199

Answer:10199

Let the amount be divided into three parts X, Y, and Z.

$$X + Y + Z = 2387$$

$$X/5 = Y/2 = Z/4 = K$$

$$X = 5K$$

$$Y = 2K$$

$$Z = 4K$$

$$\text{Hence, } 5K + 2K + 4K = 2387$$

$$11K = 2387$$

$$K = 217$$

$$5 \text{ times of 1st part} + 3 \text{ times of 2nd part} + 4 \text{ times of 3rd part} = 5X + 3Y + 4Z$$

$$= 5(5K) + 3(2K) + 4(4K) = 5(5 \cdot 217) + 3(2 \cdot 217) + 4(4 \cdot 217)$$

$$= 5425 + 1302 + 3472 = 10199$$

4) What is the greatest possible positive integer n if 16^n divides $(44)^{44}$ without leaving a remainder.

- a. 14
- b. 15
- c. 28
- d. 29

Answer:29

5) In a test with 26 questions, five points were deducted for each wrong answer and eight points were added for every correct answer. How many were answered correctly if the score was zero?

- a. 11
- b. 10
- c. 13

d. 12

Answer:10

Let the number of correct answers be y and number of wrong answers be x.

$$(-5)x + 8(y) = 0$$

$$x + y = 26$$

On solving these, we get $x = 16$ and $y = 10$

6) The air-conditioned bus service from Siruseri industry park runs at regular intervals throughout the day. It is now 3:12 pm and it has arrived 1 minute ago but it was 2 minutes late. The next bus is due at 3:18 pm. When is the next bus due?

a. 3:27 pm

b. 3:29 pm

c. 3:24 pm

d. 3:25 pm

Answer:3:27 pm

Time right now = 3:12 pm

Time at which the bus should have arrived = 3:09 pm

The next bus timing = 3:18 pm

The interval between 1st bus and 2nd bus = 0.09 min

so next bus will be at = 3:18 + 0.09 = 3:27 pm

7) How many number plates can be made if the number plates have two letters of the English alphabets (A-Z) followed by two digits (0-9) if the repetition of digits or alphabets is not allowed?

a. 56800

b. 56500

c. 52500

d. 58500

Answer:58500

The number of English alphabets (a-z) = 26

The number of digits (0-9) = 10

Number of ways to arrange two alphabets without repetition = 26×25

Number of ways to arrange two digits without repetition = 10×9

Number of number plates that can be made = $26 \times 25 \times 10 \times 9 = 58500$

8) In a cricket tournament, 16 school teams participated. A sum of Rs. 8000 is to be awarded among them as prize money. If the team placed last is awarded Rs. 275 as prize money and the award increases by the same amount for successive finishing teams, how much will the team placed first receive?

- a. 1000
- b. 500
- c. 1250
- d. 725

Answer: 725

Let the team which got placed first receive an amount a .

Since the award money increases by the same amount for successive finishing teams, the series will be in AP. Let the constant amount be d .

Now, $l = 275$, $n = 16$ and $S_{16} = 8000$

$l = a + (n - 1)d$ and hence $275 = a + 15d$

$S_{16} = \frac{16}{2} [2a + (16 - 1)(d)]$ and hence $8000 = 8(2a + 15d)$

On solving these equations,

$$275 = a + 15d$$

$$1000 = 2a + 15d$$

$$(2a + 15d) - (a + 15d) = 1000 - 275$$

$$a = 725$$

9) Eeshas father was 34 years of age when she was born. Her younger brother, Shashank, now that he is 13, is very proud of the fact that he is as tall as her, even though he is three years younger than her. Eeshas mother, who is shorter than Eesha, was only 29 when Shashank was born. What is the sum of the ages of Eeshas parents now?

- a. 92
- b. 76
- c. 66
- d. 89

Answer:92

Let Eesha's present age be x .

Eesha's father's present age = $x + 34$

Shashank's age = 13

Eesha's present age = $13 + 3 = 16$

Eesha's mother's present age = $29 + 13 = 42$

Sum of the ages of Eeshas parents now = $42 + 16 + 34 = 92$

10) Fishing is a serious environmental issue. It has been determined by the scientists that if the net of a trawler has mesh size x cm by x (square mesh) then the percentage of fish entering the net that is caught in the net is $(100 - 0.02x^2 - 0.05x)$. For example, if the mesh size is zero 100% of the fish that enters the net will be caught. The trawler with the net with a square mesh that was suspected of using an illegal size net dropped its net to the ocean near the damans and coast guard officials arrested the crew. The scientists later looked at the size of the fish caught and estimated that the net used by the trawler at least 97.93% of the fish entering the net would be caught. What is the maximum value of x for the net by the trawler?

- a. 8.5
- b. 9
- c. 11
- d. None of the answers

Answer:9

11) In this question, x^y stands for x raised to the power y . For example, $2^3=8$ and $4^{1.5}=8$. If a, b are real numbers such that $a+b=3$, $a^2+b^2=7$, the value of a^4+b^4 is?

- a. 49
- b. 45
- c. 51
- d. 47

Answer:47

12) The set $A(0)$ is $(1,2,3,4)$. For $n > 0$, $A(n+1)$ contains all possible sums that can be obtained by adding two different numbers from what is the number of integers in $A(10)$. (This is an advanced question)

Answer:67

13) Considering a hash table with 100 slots. Collisions are resolved using chaining. Assuming simple uniform hashing, what is the probability that the first 3 slots are unfilled after the first 3 insertions? (NOTE: 100^3 means 100 raised to the power 3)(This is an advanced question)

a. $(97 \cdot 96 \cdot 95) / 100^3$

b. $(97 \cdot 96 \cdot 95) / (6 \cdot 100^3)$

c. $(97 \cdot 97 \cdot 97) / 100^3$

d. $(99 \cdot 98 \cdot 97) / 100^3$

Answer: $(97 \cdot 97 \cdot 97) / 100^3$

14) In this question x^y stands for x raised to the power y. For example $2^3=8$ and $4^{1.5}=8$. Find the number of positive integers $n > 2000$ which can be expressed as $n=2^m+2^n$ where m and n are integers (for example, $33=2^0+2^5$)(This is an advanced question)

Answer:65

15)A road network covers some cities. City C can be reached only from the city A or city B. The distance from A to C is 65km and that from B to C is 30km. The shortest distance from A to B is 58km. The shortest distance from city P to A is 420km and the shortest distance from city P to B is 345km. The shortest distance from city P to city C in kms is:

a. 153

b. 478

c. 403

d. 375

Answer:375