SUB. : Mathematics Part - I
STD. : 10 (English)
TIME: 2 hrs
DATE: 21-Sep-2021

www.scholarsclasses.com/blog   **Marks: 40**

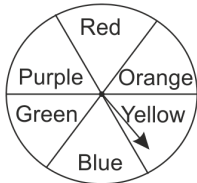**Q.1 A) Solve Multiple choice questions.**   **(4)**

1) Find the sum of first 50 natural numbers.
a. 1450   b. 1275   c. 1325   d. 1280

2) A die is thrown. Calculate n(s).
a. 5   b. 6   c. k7   d. 8

3) If $\frac{1}{2}$ is a root of the equation $x^2 + kx - \frac{5}{4} = 0$, then the value of k is

a. 2   b. -2   c. $\frac{1}{4}$ d. $\frac{1}{2}$

4) x - 2y = 4   ;   2x - 4y = 8 represents.
a. One line in xy graph   b. Two lines in xy graph
c. Three lines in xy graph   d. Four lines in xy graph

B) Solve the following questions.   **(4)**

1)

The arrow is rotated and it stops randomly on the disc. Find out on which colour it may stop.

2) Find the values of following determinants.

$$\begin{vmatrix} 5 & 3 \\ -7 & 0 \end{vmatrix}$$

3) Is the following equation is quadratic?
$x^2 - 2x + 5 = x^2$

4) Which of the following sequences are A.P.? If they are A.P. find the common difference.
0, - 4, - 8, - 12, ...

Q.2 A) Complete the following Activities. (Any Two)   **(4)**

1) Fill up the boxes and find out the number of terms in the A. P. 1, 3, 5, ..., 149.

Here a = 1, d = _____, t_n = 149
t_n = a + (n - 1) d
∴   149 = _____
        149 = 1 + 2n - 2
∴   149 = 2n - _____
∴   2n = 150
∴   n = _____

2) Complete the following table to draw the graph of 3x - y = 2

x	_____	- 1

y	1	_____
(x, y)	_____	_____

3) The following table shows the blood-groups of employees in a bank.

Event C is : 'the blood-group of an employee is AB.'

Blood - group	A	B	AB	O
No. of employees	20	40	15	25

If an employee is chosen at random, what is the probability that his blood - group is AB ?

Fill in the following boxes and find the answer.

n(S) = _____

n(C) = _____

P(C) = _____ = _____

B) Solve the following questions. (Any four)   **(8)**

1) 'M/s. Real Paint' sold 2 tins of lustre paint and taxable value of each tin is Rs.2800. If the rate of GST is 28%, then find the amount of CGST and SGST charged in the tax invoice.

2) A card is drawn at random from well-shuffled pack of 52 playing cards. Find the probability that the card drawn is

a face card.

3) Which of the following sequences are A.P.? If they are A.P. find the common difference.

$2, \dfrac{5}{2}, 3, \dfrac{7}{2}, \ldots\ldots$

4) $2x^2 - 7x + 6 = 0$ check whether $x = \dfrac{3}{2}$ are solutions of the equations.

5) Find D_y for the simultaneous equations $x - 2y = -18$; $2x - y = 9$.

Q.3 A) Complete the following Activity (Any one)   **(3)**

1) In a game of chance, the spinning arrow rests at one of the numbers 1, 2, 3, 4, 5, 6,7 and 8. All these are equally likely outcomes.

Find the probabilities of the following events.

a. The arrow rests at an odd number.

b. It rests at a prime number.

c. It rests at a multiple of 2.

$$s = \{\_\_\_\_\_\}$$
$$\therefore \quad n(s) = 8$$
$$A = \{\_\_\_\_\_\}$$
$$\therefore \quad n(A) = 4$$
$$\therefore \quad p(A) = \frac{n(A)}{n(S)} = \frac{4}{8} = \frac{1}{2}$$
$$B = \{\_\_\_\_\_\}$$
$$\therefore \quad n(B) = 4$$
$$\therefore \quad p(B) = \frac{n(B)}{n(S)} = \frac{4}{8} = \_\_\_\_\_$$
$$C = \{\_\_\_\_\_\}$$
$$\therefore \quad n(C) = 4$$
$$P(C) = \frac{n(C)}{n(S)} = \frac{4}{8} = \_\_\_\_\_$$

2) There is an auditorium with 35 rows of seats. There are 20 seats in the first row, 22 seats in the second row, 24 seats in the third row and so on. Find the numbers of seats in the twenty-second row.

The number of seats in consecutive rows increases by 2.

∴   20, 22, 24 ..., is an A.P.

∴   d = _____ = _____

There are 20 seats in the first row.   ∴ a = 20.

We have to find the number of seats in the twenty-second row, i. e. we have fund t_{22}.

t_n = _____   ... (Formula)

∴

t_{22} = 20 + (22 - 1) × 2   .. (Substituting the values)

        = _____

        = _____

∴ t_{22} = _____.

The numbers of seats in the twenty-second row is _____.

B) Solve the following questions. (Any two)   **(6)**

1)   A bag contains 6 red balls and some blue balls. If the probability of drawing a blue ball is twice that of a red ball, find the number of balls in the bag.

2)   The sum of first 55 terms in an A.P. is 3300, find its 28th term.

3)   There are three dealers A, B and C in Maharashtra. Suppose, the trade of each of them in september 2018 was as shown in the following table.
The rate of GST on each transaction was 5%.

Dealer	GST collected on the sale	GST paid at the time of purchase	ITC	Tax paid to the Govt.	Tax balance with the Govt.
A	Rs. 5000	Rs. 6000	Rs. 5000	Rs. 0	Rs. 1000
B	Rs. 5000	Rs. 4000	Rs. 4000	Rs. 1000	Rs. 0
C	Rs. 5000	Rs. 5000	Rs. 5000	Rs. 0	Rs. 0

i) How much amount did the dealer A get by sale?

ii) For how much amount did the dealer B buy the articles?

iii) How much is the balance of CGST and SGST left with the government that was paid by A?

4)   Solve: $5x^2 - 4x - 3 = 0$ by completing square method.

Q.4   Solve the following questions. (Any two)   **(8)**

1)   Two taps A and B can together fill a swimming pool in 15 days. A and B are kept open for 12 days and then B is closed. It takes another 8 days for the pool to be filled. How many days does each tap require to fill the pool?

2)   Draw histogram and frequency polygon for the following data :

Body mass index	18-19	19-20	20-21	21-22	22-23	23-24
No. of persons	5	12	18	25	16	4

3)   A man repays a loan of Rs. 3,250 by paying Rs. 305 in the first month and then decreases the payment by Rs.15 every month. How long will it take to clear his loan?

Q.5   Solve the following questions. (Any one)   **(3)**

1)   Iraa wants to buy a car. She want to select a car depends on usage of petrol by it. Car A travels x km for every litre of petrol, while car B travels (x + 5) km for every litre of petrol.
Help her to choose perfect car for her by finding litres of petrol used by car A and car B in covering a

distance of 400km. If car A uses 4 litres of petrol more than car B in covering 400 km, write down an equation, in x and solve it to determine the number of litres of petrol by car B for the journey.

2) Nayana want to measure the weight of the bucket but was not able to, as there was water in it. The weight of a bucket shows 19 kg when it is filled with water up to $\frac{5}{7}$ of its capacity and shows 22 kg when it is filled with water up to $\frac{6}{7}$ of its capacity. Help her to find weight of bucket, when it is completely filled with water.