Techior Solutions Pvt. Ltd.

SSC X Mathematics (I)

Total Time: 2 Hr | Total Marks: 40.0

Mathematics - I

Write the correct alternative : **5 × 1=5**

1) What is the probability of the event that a number chosen from 1 to 50 is an odd number? **1**

A) 20%
B) 40%
C) 50%
D) 60%

2) For an A.P., if a = 3, d = 5, what is the value of t_{11}? **1**

A) 53
B) 58
C) 85
D) 35

3) A businessman collected GST ₹ 960 on selling an article for ₹ 8000. What is the rate of GST? **1**

A) 28%
B) 18%
C) 12%
D) 5%

4) What is the value of k, if one root of the quadratic equation $kx^2 - 7x + 12 = 0$ is 3? **1**

A) 1
B) -1
C) 3
D) -3

5) Which of the following is not a quadratic equation? **1**

A) $x^2 + 4x = 11 + x^2$
B) $x^2 = 4x$
C) $5x^2 = 90$
D) $2x - x^2 = x^2 + 5$

Answer the following **5 × 1=5**

6) Fill in the blanks with correct numbers: **1**

$$\begin{vmatrix} 3 & 2 \\ 4 & 5 \end{vmatrix} = 3\times \_\_\_ - \_\_\_\_ \times 4$$

7) Decide which of the following are quadratic equations. **1**

$m^3 + 3m^2 - 2 = 3m^3$

8) Determine nature of roots of the quadratic equations. **1**

$x^2 + 2x - 9 = 0$

9) Smita has invested ₹ 12,000 and purchased shares of FV ₹ 10 at a premium of ₹ 2. Find the number of shares she purchased. Complete the given activity to get the answer. **1**

10) Which of the following sequences is an A.P.? If they are A.P., find the common difference. 2, 4, 6, 8, . . . **1**

Answer the following (any Five) : **5 × 2=10**

11) Two roots of quadratic equations are given : frame the equation : **2**
10 and - 10

12) Find the values of the discriminant for the following quadratic equation: **2**

$x^2 + 7x - 1 = 0$

13) Market value of a share is ₹ 200. If the brokerage rate is 0.3% then find the purchase value of the share. **2**

14) Complete the following table by writing suitable numbers and words. **2**

Sr. No.	FV	Share is at	MV
(1)	₹ 100	par	.....
(2)	.....	Premium ₹ 500	₹ 575
(3)	₹ 10	.....	₹ 5

15) The following table shows causes of noise pollution. Show it by a pie diagram. **2**

Construction	Traffic	Aircraft take offs	Industry	Trains
10%	50%	9%	20%	11%

16) In a game of chance, a spinning arrow comes to rest at one of the numbers l, 2, 3, 4, 5, 6, 7, 8. All these are equally likely outcomes. **2**

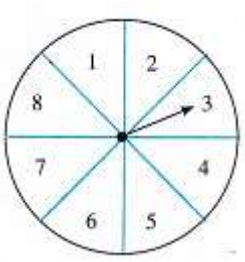
Find the probability that it will rest at

(1) 8

(2) an odd number.

(3) a number greater than 2.

(4) a number less than 9.



17) The following table shows the average rainfall in 150 towns. Show the information by a frequency polygon. **2**

Average rainfall (cm)	0–20	20–40	40–60	60–80	80–100
Number of towns	14	12	36	48	40

18) A share is sold for the market value of ₹1000. Brokerage is paid at the rate of 0.1%. What is the amount received after the sale? **2**

Answer the following (any Five) : **5 × 3=15**

19) Solve the following simultaneous equations using Cramer's method: **3**
6x - 3y = - 10 3x + 5y - 8 = 0

20) The following table shows the number of students and the time they utilized daily for their studies. Find the mean time spent by students by direct method. **3**

Time (hrs.)	0–2	2–4	4–6	6–8	8–10
Number of students	7	18	12	10	3

21) Mukund possess Rs 50 more than what sagar possesses. The product of the numbers of the amount they have is rs .15000. Find the amount each has. **3**

22) Determine the nature of the roots for each of the following quadratic equations : **3**

$m^2 - 2m + 1 = 0$

23) Complete the following activity to solve the quadratic equation : **3**

$m^2 - 11 = 0$

24) Divide 207 into three parts such that the numbers are in A.P. and the product of the two smaller parts is 4623. **3**

25) Complete the following activity to solve the quadratic equation **3**

2m (m -24) = 50

26) Solve the following quadratic equations : **3**

$m^2 + 5m + 5 = 0$

Answer the following (any One) : **1 × 5=5**

27) Solve the following quadratic equation by completing square method: **5**

$5x^2 = 4x + 7$

28) Complete the following table. **5**

Equation	No. of variables	whether linear or not
$\frac{3}{x} - \frac{4}{y} = 8$	2	Not linear
$\frac{6}{x-1} + \frac{3}{y-2} = 0$		
$\frac{7}{2x+1} + \frac{13}{y+2} = 0$		
$\frac{14}{x+y} + \frac{3}{x-y} = 5$		

In the above table the equations are not linear. Can you convert the equations into linear equations?