Techior Solutions Pvt. Ltd.

SSC X Mathematics - I

Total Time: 2 Hr | Total Marks: 40.0

Mathematics - I

MCQ Single Correct **8 x 1=8**

1) In the frequency table showing the amount invested in health insurance of some families d_i for a certain class is –1200. If g = 400, what is the value of u_i for that class? **1.0**

A) - 3
B) 3
C) 2
D) - 2

2) For simultaneous equations in x and y, if D_x = 49, $D_y = -63$ and D = 7, then what is the value of x? **1.0**

A) 7
B) -7
C) $\frac{1}{7}$
D) $\frac{-1}{7}$

3) What is the common difference of the A.P. 10, 11.5, 13, 14.5, . . . ? **1.0**

A) 1.5
B) -1.5
C) 2.5
D) -.25

4) If for an A.P. d = 5, then $t_{18} - t_{13}$ = **1.0**

A) 5
B) 20
C) 25
D) 30

5) Which of the following are the terms of an A.P.? **1.0**

A) 1, 3, 6, 10
B) 3, 6, 12, 24
C) 28, 26, 24, 22
D) 4, 2, 3, 1

6) For drawing the graph of 4x + 5y = 19, if x = 1, what is the value of y? **1.0**

A) 4
B) 3
C) 2
D) -3

7) The rate of GST on stainless steel utensils is 18%, then the rate of state GST is ___ **1.0**

A) 18%
B) 9%
C) 36%
D) 0.9%

8) Which of the following is the value of the discriminant for $\sqrt{2}x^2 - 5x + \sqrt{2} = 0$? **1.0**

A) -5
B) 17
C) $\sqrt{2}$
D) $2\sqrt{2} - 5$

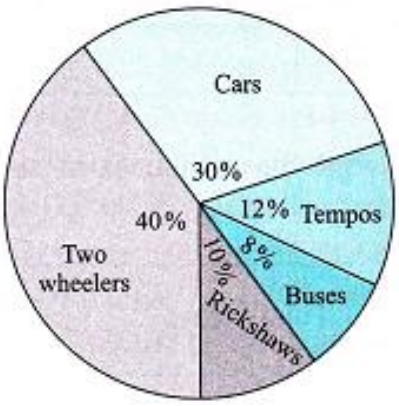
Short Description **6 x 2=12**

9) Joseph kept 26 cards in a cap, bearing one English letter on each card. One card is drawn at random. What is the probability that the card drawn is a vowel card? **2.0**

10) If α and β are the roots of the quadratic equation $y^2 - 2y - 7 = 0$, find the values of **2.0**

$\alpha^2 + \beta^2$ (2) $\alpha^3 + \beta^3$

11) Observe the pie diagram given below. It shows the percentages of number of vehicles passing a signal in a town between 8 am and 10 am. **2.0**



(1) Find the central angle for each type of vehicle.

(2) If the number of two wheelers is 1200, find the number of all vehicles.

12) The time required for students to do a science experiment and the number of students is shown in the following grouped frequency distribution table. Show the information by a histogram and also by a frequency polygon. **2.0**

Time required for experiment (minutes)	20 – 22	22 – 24	24 – 26	26 – 28	28 – 30	30 – 32
Number of students	8	16	22	18	14	12

13) Find the value of k, if the roots of the following quadratic equations are real and equal : **2.0**

$3y^2 + ky + 12 = 0$

14) If the face value of both the shares is same, then which investment out of the following is profitable? **2.0**

Company A : dividend 16%, MV = ` 80,

B : dividend 20% MV = ` 120.

15) One of the roots of the quadratic equation $5m^2 + 2m + k = 0$ is $\frac{-7}{5}$. Complete the following activity to find the value of k. **2.0**

16) Mr. Amol purchased 50 shares of Face Value ` 100 when the Market value of the share was ` 80. Company had given 20% dividend. Find the rate of return on investment. **2.0**

Medium Description **4 x 3=12**

17) Complete the following activity to solve the quadratic equation $25m^2 = 9$ **3.0**

18) The 17^{th} term of an A.P. is 7 more than the 10^{th} term. Find the common difference. **3.0**

19) These allotted for the preparation of an examination by some students is shown in the table. Draw a histogram to show the information. **3.0**

Time (minutes)	60 – 80	80 – 100	100 – 120	120 – 140	140 – 160
Number of students	14	20	24	22	16

20) Solve the following quadratic equations : **3.0**

$5m^2 + 2m + 1 = 0$

21) Solve : 3x + 2y = 29; 5x - y = 18 **3.0**

22) Basketball players John, Vasim, Akash were practicing the ball drop in the basket. The probabilities of success for John, Vasim and Akash , $\frac{4}{5}, 0.83$ and 58% respectively. Who had the greatest probability of success? **3.0**

23) Solve the following quadratic equation by factorization method: **3.0**

$$6x - \frac{2}{x} = 1$$

24) Solve the following quadratic equation by factorization method: **3.0**

$$2x^2 - 2x + \frac{1}{2} = 0$$

25) Out of 200 students from a school, 135 like Kabaddi and the remaining students do not like the game. If one student is selected at random from all the students, find the probability that the student selected doesn't like Kabaddi. **3.0**

Long Description **2 x 4=8**

26) Anna Patil (Thane, Maharashtra) supplied Vacuum cleaner to a shopkeeper in Vasai (Mumbai) for the taxable value of ` 14000, and GST rate of 28%. Shopkeeper sold it to the customer at the same GST rate for ` 16,800 (taxable value). Find the following - **4.0**

(1) The amount of CGST and SGST shown in the tax invoice issued by Anna Patil.

(2) The amount of CGST and SGST charged by the shopkeeper in Vasai.

(3) What is the CGST and SGST payable by shopkeeper in Vasai at the time of filling the return.

27) Solve the following quadratic equation by completing square method: **4.0**

$$x^2 + 2x - 5 = 0$$

28) In an A.P., the sum of three consecutive terms is 27 and their product is 504. Find the terms. [Assume that three consecutive terms in A.P. are a – d , a and a + d] **4.0**