

Sure shots (1 Mark) Questions

- Find the values of a and b from the quadratic equation $2x^2 - 5x + 7 = 0$.
- Find the second term of the sequence $t_n = 4n - 3$.
- If the rate of GST on butter is 12%, what is the rate of CGST and SGST?
- The classes are 5-9, 10-14, 15-19, Find the true lower class limit of the class 5 - 9.
- Find the value of $(x + y)$, if $5x - 2y = 10$; $x + 8y = 26$.
- Write the quadratic equation in variable x, if $\alpha + \beta = -6$, $\alpha\beta = 4$.
- What is the brokerage at 0.2% on a share of FV ₹10 and MV ₹50?
- Find \bar{d} , if $\sum f_i d_i = 18$ and $\sum f_i = 15$.
- To solve $x + y = 3$; $3x - 2y - 4 = 0$ by determinant method, find D.
- Determine whether $\frac{5}{2}$ is a root of the quadratic equation $2m^2 - 5m = 0$.
- If $P(A) = \frac{3}{4}$, $n(A) = 24$, what is $n(S)$?
- Find the mean (\bar{X}), if $\sum f_i = 100$ and $\sum f_i x_i = 3880$.
- Find the value of x, if $4x + 3y = 18$ and $y = 2$.
- Find the second and third terms of an A.P. whose first term is 7 and the common difference is -5.
- What is the MV of a share of FV ₹10, if it is a premium of 20%?
- How is the probability $\frac{1}{5}$ written in percentage?

17. Multiply the equation $\frac{x}{7} - \frac{y}{8} = 1$ by 56 and rewrite it.

18. Find the common difference (d) for an A.P., if $t_4 = 12$ and $t_5 = 14$.

19. If the CGST on an article is ₹45, what is GST on it?

20. A coin is tossed. Write the sample space S and the number of sample points $n(S)$.

Sure shots (2 Marks) Questions

21. Complete the following activity to find the value of the determinant.

Activity :

$$\begin{vmatrix} 2\sqrt{3} & 9 \\ 2 & 3\sqrt{3} \end{vmatrix} = 2\sqrt{3} \times \underline{\hspace{1cm}} - 9 \times \underline{\hspace{1cm}} \\ = \underline{\hspace{1cm}} - 18 = \underline{\hspace{1cm}}$$

22. In a bicycle shop, the number of bicycles purchased and their colours are given in the following table. To show the information by a pie diagram, measures of central angles of sectors are to be decided. Complete the following activity to find the measures.

Activity :

Colour	Number of bicycles	Measure of the central angle
White	12	$\underline{\hspace{1cm}} \times 360^\circ = \underline{\hspace{1cm}}$
Black	10	$\frac{10}{36} \times 360^\circ = 100^\circ$
Blue	6	$\underline{\hspace{1cm}} \times 360^\circ = \underline{\hspace{1cm}}$
Red	8	$\underline{\hspace{1cm}} \times 360^\circ = \underline{\hspace{1cm}}$
Total	36	360°

23. One of the roots of the quadratic equation $4x^2 - 17x + k = 0$ is $\frac{-3}{4}$.

Complete the following activity to find the value of k.

Activity:

$\frac{-3}{4}$ is a root of the quadratic equation $4x^2 - 17x + k = 0$.

Substitute $x = \frac{-3}{4}$ in the equation.

$$\therefore 4 \times \left(\frac{-3}{4}\right)^2 - 17 \times \underline{\hspace{1cm}} + k = 0$$

$$\therefore \underline{\quad} + \frac{51}{4} + k = 0$$

$$\therefore \underline{\quad} + k = 0 \quad \therefore k = \underline{\quad}$$

24. Find the values of $x + y$ and $x - y$, if $5x + 4y = 14$; $4x + 5y = 13$.

25. Determine the nature of the roots of the quadratic equation $3x^2 - 4x - 4 = 0$.

26. Find the 30th term of the A.R 3, 8, 13, 18,

27.

Class (marks)	Number of students (f_1)	Cumulative frequency (Less than type)
0-20	4	4
20-40	20	24
40-60	30	54
60-80	40	94
80-100	6	100

Observe the table given above and answer the following questions :

- Which is the median class?
- What is the class interval (h) of the median class?
- What is cf of the class preceding the median class?
- What is the lower limit of the median class?

28. If $a = 12$, $d = A$ and $t_n = 96$, find the value of n .

29. Complete the following activity to solve the simultaneous equations $3x + 2y = 29$ and $10x - 2y = 36$.

Activity:

Adding the given equations,

$$3x + 2y = 29 \quad \dots(1)$$

$$10x - 2y = 36 \quad \dots(2)$$

$$13 = \underline{\quad} \quad \therefore x = \underline{\quad}$$

Substituting the value of x in equation (1),

$$15 + 2y = 29$$

$$\therefore 2y = \underline{\quad}$$

$$\therefore y = \underline{\quad}$$

30. Complete the following activity to solve the quadratic equation $\sqrt{3}x^2 + 4x - 7\sqrt{3} = 0$ by factorisation method.

Activity:

$$\sqrt{3}x^2 + 4x - 7\sqrt{3} = 0$$

$$\therefore \sqrt{3}x^2 + \underline{\quad} - 3x - 7\sqrt{3} = 0$$

$$\therefore x(\sqrt{3}x + 7) \underline{\quad} - \sqrt{3}(\sqrt{3}x + 7) = 0$$

$$\therefore (\underline{\quad})(x - \sqrt{3}) = 0$$

$$\therefore \sqrt{3}x + 7 = 0 \text{ or } \underline{\quad} = 0$$

$$\therefore x = -\frac{7}{\sqrt{3}} = 0 \text{ or } x = \underline{\quad}$$

31. Complete the activity to prepare a table showing the coordinates which are necessary to draw a frequency polygon.

Class	18-19	19-20	20-21	—
Class mark	18.5	19.5	—	21.5
Frequency	4	—	15	19
Coordinates of the point	—	(19.5, 13)	(20.5, 15)	(21.5, 19)

32. Find the values of $(x - y)$ and $(x + y)$, if $5x + 3y = 31$ and $3x + 5y = 25$.

33. Solve by factorisation method: $2y^2 + 27y + 13 = 0$.

34. If NAV of one unit is ₹25, then how many units will be allotted for the investment of ₹10,000?

35. Two coins are tossed simultaneously. Find the probability of the event A of getting one head.

36. If $L = 60$, $f_1 = 100$, $f_0 = 70$, $f_2 = 80$, $h = 20$, then find the mode using formula.

37. Complete the following activity to find the value of the determinant.

Activity:

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

$$= \underline{\quad} - 8 = \underline{\quad}$$

38. Complete the following activity to find the value of the discriminant for the quadratic equation $4x^2 - 5x + 3 = 0$.

Activity:

$$4x^2 - 5x + 3 = 0$$

$$\text{Here, } a = 4, b = \underline{\quad}, c = 3.$$

$$b^2 - 4ac = (-5)^2 - \underline{\quad} \times 4 \times 3 = \underline{\quad} - 48 = \underline{\quad}.$$

39. The following table shows the daily supply of electricity to different places in a town. To show the information by a pie diagram, measures of central angles of sectors are to be decided. Complete the following activity to find the measures.

Activity:

Place	Supply of electricity (Thousand units)	Measure of the central angle
Roads	4	$\frac{4}{30} \times 360^\circ = 48^\circ$
Factories	12	$\frac{12}{30} \times 360^\circ = 144^\circ$
Shops	6	$\frac{6}{30} \times 360^\circ = \underline{\hspace{2cm}}$
Houses	8	$\frac{8}{30} \times 360^\circ = \underline{\hspace{2cm}}$
Total	30	360°

40. If $\begin{vmatrix} 4 & 5 \\ m & 3 \end{vmatrix} = 22$, then find the value of m.

41. One of the roots of the quadratic equation $kx^2 - 20x + 12 = 0$ is $\frac{2}{3}$. Find the value of k.

42. Write the A.P. whose first term is 6 and the common difference is -3.

43. Two coins are tossed simultaneously. Write the sample space S and n(S).

44. Write the following classes as continuous classes:
2-3, 4-5, 6-7, 8-9.

45. Complete the following activity to draw the graph of $x - y = 4$.

Activity:

x	0	$\underline{\hspace{2cm}}$	2
y	$\underline{\hspace{2cm}}$	1	$\underline{\hspace{2cm}}$
(x, y)	(0, -4)	($\underline{\hspace{2cm}}$)	(2, -2)

46. Complete the following activity to find the value of the discriminant for the quadratic equation $x^2 + 7x - 1 = 0$.

Activity:

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

Comparing $x^2 + 1x - 1 = 0$ with $ax^2 + bx + c = 0$,

$$a = 1, b = 1, c = \underline{\hspace{2cm}}$$

$$b^2 - 4ac = \underline{\hspace{2cm}} - 4 \times 1 \times (-1)$$

$$= 49 + \underline{\hspace{2cm}}$$

47. Suresh invested ₹1200 and purchased shares of FV ₹10 at a premium of 50%. Complete the following activity to find the number of shares he purchased.

Activity:

$$FV = ₹10, \text{ premium } 50\%$$

$$\therefore \text{ premium} = \underline{\hspace{2cm}}$$

$$MV = \underline{\hspace{2cm}} + \text{Premium} = ₹10 + ₹5 = ₹15.$$

The number of shares = $\frac{\text{MV}}{FV}$... (Formula)

$$= \frac{1200}{15}$$

$$= \underline{\hspace{2cm}}$$

48. Find the value of the determinant $\begin{vmatrix} 3\sqrt{6} & -4\sqrt{2} \\ 5\sqrt{3} & -2 \end{vmatrix}$

49. Find the value of the discriminant for the quadratic equation $\sqrt{3}x^2 - 2\sqrt{2}x - 2\sqrt{3} = 0$.

50. If $t_n = 5 - 11n$, find the value of d.

51. A trader collected ₹30,000 as GST in a certain month. If his ITC is ₹22,000, what is his payable CGST?

52. For the frequency distribution of time (in minutes) a worker takes to complete the work, $\sum f_i = 100$, $\sum f_i d_i = 185$ and the mean (\bar{X}) = 38.85. Find the assumed mean (A).

53. Complete the following activity to solve the simultaneous equations

$$5x + 3y = 9 \quad \dots (1) \text{ and}$$

$$2x - 3y = 12 \quad \dots (2)$$

Activity:

Adding equations (1) and (2),

$$5x + 3y = 9 \quad \dots (1)$$

$$2x - 3y = 12 \quad \dots (2)$$

$$\underline{\hspace{2cm}} = 21 \quad \therefore x = \underline{\hspace{2cm}}$$

Substituting the value of x in equation (1),

$$\underline{\hspace{2cm}} + 3y = 9 \quad \therefore 3y = \underline{\hspace{2cm}} \quad \therefore y = -2.$$

54. Complete the following activity to find the value of k, if the root of the quadratic equation $2x^2 + kx - 2 = 0$ is -2.

Activity :

-2 is the root of the quadratic equation $2x^2 + kx - 2 = 0$.

\therefore substitute $x = -2$ in the equation.

$$2 \times \underline{\hspace{2cm}} + k \times \underline{\hspace{2cm}} - 2 = 0$$

$$\therefore 8 - \underline{\hspace{2cm}} - 2 = 0$$

$$\therefore -2k = \underline{\hspace{2cm}} \quad \therefore k = 3.$$

55. Dinesh Chemicals paid ₹1,80,000 GST for purchase of some chemicals and collected ₹2,50,000 GST at the time of the sale. Complete the following activity to find the GST payable by Dinesh Chemicals.

Activity :

Output tax in this example is ₹ $\underline{\hspace{2cm}}$

Input tax in this example is ₹ $\underline{\hspace{2cm}}$

$$\begin{aligned} \text{GST payable} &= \text{Output tax} - \text{ITC} \\ &= ₹ (250000 - \text{---}) \\ &= ₹ \text{---} \end{aligned}$$

56. The sum of two numbers is 27. The difference between twice the greater number and the smaller number is 18. Find the numbers.

57. Solve the quadratic equation $x^2 - 2x - 15 = 0$ by factorisation method.

58. How many two-digit numbers are divisible by 7?

59. Amol purchased 50 shares of FV ₹100 when the MV of the share was ₹80. Company declared 20% dividend. Find the rate of return on investment.

60. Find the mean of the data given in the following table :

Class	20-40	40-60	60-80	80-100
Frequency	4	5	7	4

Sure shots (3 Marks) Questions

61. Complete the following activity to find the roots of the quadratic equation $5x^2 + 13x + 8 = 0$ by formula method.

Activity:

$$5x^2 + 13x + 8 = 0$$

Comparing with $ax^2 + bx + c = 0$, we get,

$$a = 5, b = \text{---}, c = 8.$$

$$b^2 - 4ac = (13)^2 - 4 \times 5 \times 8$$

$$= 169 - 160 = \text{---}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \dots \text{(Formula)}$$

$$= \frac{-13 \pm \sqrt{9}}{2 \times 5}$$

$$\therefore x = \frac{-13+3}{10} \text{ or } x = \frac{-3}{10}$$

$$\therefore x = -1 \text{ or } x = \text{---}$$

62. There are six cards in a box, each bearing a number from 0 to 5. Complete the following activity to find the probability that a card drawn shows (a) a natural number (b) a number less than 3.

Activity :

$$S = \{0, 1, 2, 3, 4, 5\} \quad \therefore n(S) = 6.$$

(a) Let A be the event that a card drawn shows a natural number.

$$A = \{\text{---}\} \quad \therefore n(A) = \text{---}$$

$$P(A) = \frac{\text{---}}{\text{---}} \quad \dots \text{(Formula)}$$

$$\therefore P(A) = \frac{5}{6}$$

(b) Let B be the event that a card drawn shows a number less than 3.

$$B = \{\text{---}\} \quad \therefore n(B) = \text{---}$$

$$P(B) = \frac{n(B)}{n(S)}$$

$$\therefore P(B) = \text{---}$$

63. The product of Pragati's age 2 years ago and 3 years hence is numerically 84. Find her present age.

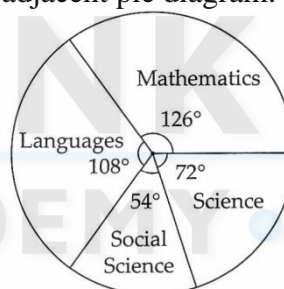
64. Find the sum of all even numbers between 1 and 350.

65. Prasad purchased a washing machine at a discount of 5% on the printed price of ₹ 40,000. The rate of GST charged was 28%. Find the purchase price of the washing machine for Prasad. Find the amount of CGST and SGST shown in the tax invoice.

66. The daily sale of 100 vegetable vendors is given in the following table. Find the mean of sale by assumed mean method. (Take assumed mean (A) = 2250, deviation $d_i = x_i - A$, where x_i is the class mark.)

Daily sale (₹)	1000-1500	1500-2000	2000-2500	2500-3000
Number of vendors	15	20	35	30

67. A survey of 500 students of a school was conducted to know the inclination towards different subjects. The data obtained is presented by the adjacent pie diagram.



Answer the following questions :

(a) How many students show inclination towards mathematics?

(b) How many students are inclined towards social science?

(c) How many more students are inclined towards languages than science?

68. Draw the graph as per the given information :

(a) Draw a line AB which intersects the X-axis at (6, 0) and the Y-axis at (0, 4).

(b) Draw a line CD passing through (5, 3) and (-3, -1).

(c) Write the coordinates of the point of intersection of the lines AB and CD.

69. Shri Shantilal purchased 150 shares of FV ₹100 for MV ₹125. The company paid 8% dividend. Complete the following activity to find the rate of return.

Activity:

FV = ₹100; Number of shares = 150; MV = ₹125.

The sum invested = MV × Number of shares

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = ₹18750$$

Dividend per share = FV × Rate of dividend

$$= \underline{\hspace{2cm}} \times \frac{\underline{\hspace{2cm}}}{100} = ₹8$$

Total dividend = 150 × 8 = $\underline{\hspace{2cm}}$

Rate of return = $\frac{\text{Dividend income}}{\text{Sum invested}} \times 100$

$$= \frac{1200}{18750} \times 100 = \underline{\hspace{2cm}}$$

70. The frequency distribution of marks scored by the students is given below:

Marks	0-10	10-20	20-30	30-40	40-50
Number of students	3	10	20	5	2

Complete the following activity to find mean marks scored by a student.

Activity:

Marks	Class marks (x_i)	Frequency Marks (f_i)	$f_i x_i$
0-10	5	$\underline{\hspace{2cm}}$	15
10-20	15	10	$\underline{\hspace{2cm}}$
20-30	25	20	500
30-40	$\underline{\hspace{2cm}}$	5	175
40-50	45	2	90
Total	...	$\sum f_i = 40$	$\sum f_i x_i = \underline{\hspace{2cm}}$

Mean = $\bar{X} = \underline{\hspace{2cm}}$... (Formula)

$= \frac{930}{40}$... (Substituting the values)

\therefore mean = $\underline{\hspace{2cm}}$

71. The sum of father's age and twice the age of his son is 70. If double the age of father is added to the age of his son, the sum is 95. Find their present ages.

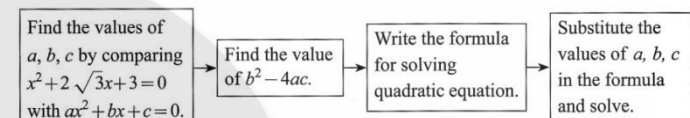
72. The sum of two roots of a quadratic equation is 5 and the sum of their cubes is 35. Find the equation.

73. Divide 207 into three parts such that the numbers are in A.R and the product of the two smaller parts is 4623.

74. Time allotted for the preparation of an examination by some students is shown in the table. Draw a histogram to show the information.

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

75. With the help of the flow chart given below, solve the equation $x^2 + 2\sqrt{3}x + 3 = 0$ using the formula:



76. A box contains 90 cards bearing a number from 1 to 90. A card is drawn at random. Find the probability of

(a) event A that the card drawn is a two-digit even number.

(b) event B that the card drawn is a perfect square number.

77. Complete the following activity to determine the nature of the roots for the quadratic equation $\sqrt{3}x^2 + \sqrt{2}x - 2\sqrt{3} = 0$.

Activity:

Comparing $\sqrt{3}x^2 + \sqrt{2}x - 2\sqrt{3} = 0$ with $ax^2 + bx + c = 0$,

$a = \sqrt{3}$, $b = \sqrt{2}$, $c = \underline{\hspace{2cm}}$.

$\Delta = b^2 - 4ac = \underline{\hspace{2cm}} - 4 \underline{\hspace{2cm}} \times (-2\sqrt{3})$

$= 2 + \underline{\hspace{2cm}} = 26$

$\therefore b^2 - 4ac > 0$.

The roots are $\underline{\hspace{2cm}}$ and $\underline{\hspace{2cm}}$

78. The first term of an A.P. is 10 and the common difference is 5. Complete the following activity to find the sum of first 30 terms.

Activity:

Here, $a = 10$, $d = 5$, $5_{30} = ?$

$S_n = \frac{n}{2} [\underline{\hspace{2cm}} + (n-1)d]$... (Formula)

$\therefore S_{30} = \frac{30}{2} [20 + (30-1) \times \underline{\hspace{2cm}}]$

$= \underline{\hspace{2cm}} \times [20 + \underline{\hspace{2cm}}]$

$= 15 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

79. Solve the simultaneous equations $2x + 3y = 12$; $x - y = 1$ using graphical method.

80. If α and β are the roots of the quadratic equation $y^2 - 2y - 7 = 0$, find the values of (a) $\alpha^2 + \beta^2$ (b) $\alpha^3 + \beta^3$.

81. Find the sum of all numbers between 1 and 145 which are divisible by 4.

82. 100 shares of FV ₹10 were purchased for MV ₹25. Company declared 20% dividend on the shares. Find (a) the sum invested (b) dividend received (c) rate of return.

83. □ABCD is a cyclic quadrilateral. The measure of $\angle A$ is double the measure of $\angle C$. Using two variables, find the measures of $\angle A$ and $\angle C$.

84. Find the mode of ages of 200 patients from the following table:

Age (years)	5-10	10-15	15-20	20-25	25-30	30-35
Number of patients	36	32	50	38	24	20

85. Complete the following activity by filling the boxes.

Activity:

Supplier: M/S Ex Electronics

28/29, XYZ Road, Mumbai - 400 028, Maharashtra.

Invoice No. : GST/001

Invoice Date : 20 Oct. 2019

Sr. No.	HSN code	Name of Product	Quantity	Rate	Taxable amount (₹)	CGST		SGST		Total ₹
						Rate	Tax ₹	Rate	Tax ₹	
1.	8507	Mobile Battery	1	₹200	—	6%	12	—	12	224
2.	8518	Head Phone	1	₹750	₹750	9%	—	9%	67.50	—
					Total ₹		—		79.50	—

86. A bag contains 8 red balls and some blue balls, all of the same size. One ball is drawn at random from the bag. The ratio of the probability of getting a red ball and a blue ball is 2:3. Complete the following activity to find the number of blue balls.

Activity:

Let the number of blue balls be x.

$\therefore n(B) = x$.

The number of red balls = 8 $\therefore n(R) = 8$

The total number of balls = $(x + 8)$

$\therefore n(S) = (x + 8)$

The probability of getting a red ball,

$P(R) = \frac{\text{Number of red balls}}{\text{Total number of balls}} \dots$ (Formula)

$\therefore P(R) = \frac{8}{x+8} \dots$ (1)

The probability of getting a blue ball,

$P(B) = \frac{n(B)}{n(S)} \therefore P(B) = \frac{x}{x+8} \dots$ (2)

From the given condition,

$\frac{P(R)}{P(B)} = \frac{2}{3} \dots$ (3)

From (1), (2) and (3),

$\frac{8}{x+8} \div \frac{x}{x+8} = 2:3$

$\therefore \frac{8}{x} = \frac{2}{3} \therefore x = 12$

87. The perimeter of an isosceles triangle is 28 cm. The length of the base is 4 cm less than twice the lengths of congruent sides. Find the lengths of all the sides of the triangle.

88. If 546 is divided by a natural number, the quotient is 3 less than 4 times the divisor and the remainder is 6. Find the quotient and the divisor.

89. There are ten cards, each bearing a number from 0 to 9. Find the probability of each of the following events that a card drawn shows (a) a prime number (b) a number more than 4 (c) a number multiple of 3.

90. In the following table, the toll paid by drivers and the number of vehicles are shown. Find the mean of the toll by 'assumed mean' method.

Toll (in ₹)	300-400	400-500	500-600	600-700	700-800
Number of vehicles	80	110	120	70	40

91. (a) Draw X and Y axes on a graph paper. Take proper scale.
 (b) Draw a line PQ parallel to the X-axis and above it at a distance of 3 units. Draw a line RS parallel to the Y-axis and towards the left of it at a distance of 5 units.
 (c) Write the coordinates of the point of intersection of the lines PQ and RS.

92. Show the following information by a pie diagram:

Crop	Jowar	Sugar cane	Vegetables
Area in hectares	60	80	40

93. A share is sold for the market value ₹5000. Brokerage is paid at 1% and GST on brokerage at 18%. Complete the following activity to find the amount received after sale.

Activity:

Brokerage per share = $\frac{1}{100} \times$ The rate of brokerage
 $= ₹5000 \times \frac{0.1}{100} = ₹$ _____

GST on brokerage = Rate of GST \times Brokerage
 $= \frac{18}{100} \times 5 = ₹$ _____

The amount received after sale = MV – _____
 $= ₹5000 - ($ _____)
 $= ₹$ _____

94. A card is drawn at random from a pack of well-shuffled 52 playing cards. Complete the following activity to find the probability that the card drawn is (a) an ace (Event A) (b) a club (Event B).

Activity:

S is the sample space.

$\therefore n(S) = 52.$

(a) **Event A** : The card drawn is an ace.

$\therefore n(A) =$ _____

$P(A) = \frac{n(A)}{n(S)}$... (Formula)

$\therefore P(A) = \frac{4}{52}$

$\therefore P(A) = \frac{1}{13}$

(b) **Event B** : The card drawn is a club.

$\therefore n(B) =$ _____

$P(B) = \frac{n(B)}{n(S)}$... (Formula)

$\therefore P(B) = \frac{13}{52}$

95. A certain amount is equally distributed among certain number of students.

If 10 students were more each would get ₹2 less and if 15 students were less each would get ₹6 more. Find the number of students and the amount distributed.

96. The difference between the roots of the equation $x^2 - 13x + k = 0$ is 7. Find the value of k.

97. One lottery ticket is drawn at random from a box containing 30 tickets numbered 1 to 30. Find the probability that the ticket drawn bears (a) an odd number (Event A) (b) a complete cube number (Event B).

98. The maximum temperatures in °C of 30 towns in the last summer, is shown in the following table. Find the mean of the maximum temperatures.

Maximum temperatures (°C)	24-28	28-32	32-36	36-40	40-44
Number of towns	4	5	7	8	6

99. Plot the points A(6, 0), B(0, 6), D(6, 4) and E(0, -2) on the same graph paper. Draw lines AB and DE intersecting each other in the point C. Find the area of the triangle formed by these lines with the Y-axis.

100.

Daily wages (in ₹)	Number of workers (f)	Cumulative frequency (Less than type)
80-85	10	10
85-90	20	30
90-95	30	60
95-100	40	100

Observe the above table and find the median.

Sure shots (4 Marks) Questions

101. A two-digit number is less than five times the sum of its digits by 8. The number obtained by interchanging the digits is greater by 27 than the original number. Find the original number.

102. A person invested ₹25,059 in shares of FV ₹100 when MV was ₹250. Rate of brokerage was 0.2% and GST on brokerage was 18%. Find (a) the number of shares purchased (b) the amount of brokerage paid (c) GST paid for trading.

103. All the face cards of diamond are removed from the pack of 52 playing cards and the remaining cards are reshuffled. A card is drawn at random. Find the probability of getting (a) a black face card (b) a king (c) a red card (d) a black card.

104. The sum of the digits of a number consisting of three digits is 12. The middle digit is equal to half the sum of the other two. If the order of the digits is reversed, the number is diminished by 198. Find the number.

105. The ages of the boys in a group are in A.P. with common difference of 3 months. The age of the youngest boy in the group is 12 years. The sum of the ages of all the boys in the group is 375 years. Find the number of boys in the group.

106. Laxmi Electronics sold a printer, costing X 8260 (with GST), to a customer for X 10,030 (with GST). The rate of GST is 18%. Find the taxable value of the printer in each case and the amount of CGST and SGST to be paid by Laxmi Electronics.

107. The following is a frequency distribution of marks:

Marks	20-30	30-40	40-50	50-60	60-70	70-80	Total
Number of students	15	a	30	b	15	10	100

The value of a is twice the value of b. Find their values and draw a histogram.

108. Party A purchased liquid soap for ₹9,440 (with GST) and sold it to Party B for ₹10,620 (with GST). The rate of GST is 18%. Find the amount of CGST and SGST to be paid by Party A.

109. There are green, white and yellow marbles in bag. The probability of picking up a green marble is $\frac{1}{4}$. The probability of picking up a white marble is $\frac{1}{3}$.

If the number of yellow marbles is 10, find the total number of marbles in the bag.

110. There is a footpath of width 2 m around a square pool. If the area of the footpath is 21% that of the pool, find the area of the pool.

111. The sum of the 2nd and 7th terms of a A.P. is 35 and their product is 250. Find the sum of first twenty-one terms of the A.P. (The terms are in ascending order.)

112. Given below is the frequency distribution of driving speed (in km/h) of the vehicles of 400 college students :

Speed (in km/h)	20-30	30-40	40-50	50-60	60-70
Number of students	6	80	156	98	60

Draw the frequency polygon for the above data.

113. If the mth term of an A.P. is $\frac{1}{n}$ and the 72th term is $\frac{1}{m}$, then show that its 77272th term is 1.

114. If the roots of the equation $(p - q)x^2 + (q - r)x + (r - p) = 0$ are equal, then prove that $2p = q + r$.

115. The following table is based on the marks of the first term examination of 10th class students. Present the information by a frequency polygon.

Class mark of marks	325	375	425	475	525	575
Number of students	25	35	45	40	32	20