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शालेय शिक्षण व क्रीडा विभाग
राज्य शैक्षणिक संशोधन व प्रशिक्षण परिषद, महाराष्ट्र पुणे
७०८ सदाशिव पेठ, कुमठेकर मार्ग, पुणे ४११०३०
संपर्क क्रमांक (०२०) २४४७ ६९३८ E-mail: mathsdept@maa.ac.in

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प्रश्नपेढी (Question Bank)

इयत्ता:- दहावी

माध्यम:- सेमी इंग्रजी /इंग्रजी

विषय:- गणित भाग -१

सूचना-

१. सदर प्रश्नपेढी ही १००% अभ्यासक्रमावर तयार करण्यात आली आहे.

२. सदर प्रश्नपेढीतील प्रश्न हे अधिकच्या सरावासाठी असून प्रश्नसंचातील प्रश्न बोर्डाच्या प्रश्नपत्रिकेत येतीलच असे नाही, याची नोंद घ्यावी.

1. Linear equation in two variables

Q.1(A) MCQ

1. To draw the graph of $4x + 5y = 19$, if $x = 1$ is taken then what will be the value of y?

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

2) For the equations with variables x and y, if $Dx = 26$, $Dy = -39$ and $D = 13$ then x =?

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

3) Which of the following is linear equation in two variables?

A) $\frac{x}{3} + \frac{5}{y} = 6$ B) $2x^2-3y=8-3y$ C) $x+2y=5-3y$ D) $3x^2+y$

4) which of the following is not the solution of $3x+6y=12$?

A) (-4,4) B) (0,2) C) (8, -2) D) (3,1)

5) $\begin{vmatrix} 3 & 5 \\ 2 & x \end{vmatrix} = 2 \ \therefore x =$ -------

A) 3 B) 4 C) – 3 D) – 4

6) For equations $5x + 3y + 11 = 0$ and $2x + 4y = -10$ find D.

A) 14 B) – 14 C) 26 D) – 26

7) If $49x - 57y = 172$ and $57x - 49y = 252$ then $x + y$ =?

A) 80 B) 0 C) 10 D) 8

8) The solution of the equation $2x - y = 2$ is ------.

A)(2,2) B) (5,2) C) (2,5) D) (5,5)

The solution of the equation x-y=10 and x+y=70 is --------.

A)(40,30) B) (30,40) C) (10,60) D) (50,20)

10) Find the value of D_x for the equation $4x + 3y = 19$ and $4x - 3y = -11$

A) 24 B) 0 C) -24 D) 108

Q. 1 B) Each of 1 mark

1) State with reason whether the equation $3x^2 - 7y = 13$ is a linear equation with two variables?

2) Show the condition using variable x and y: Two numbers differ by 3

3) For the equation $4x + 5y = 20$ find y when $x = 0$

4) Write any two solutions of the equation $x + y = 7$.

5) Decide whether (0, 2) is the solution of the equation $5x + 3y = 6$

6) Write any two solution of the equation $a - b = -3$

7) If $x+2y=5$ and $2x+y=7$ then find the value of $x+y$

8) 8) If Dx = 24 and x = - 3 then find the value of D.

9) The cost of the book is 5 rupees more than twice the cost of a pen. Show this using linear equation by taking Cost of book(x) and cost of a pen(y).

10) If $\frac{a}{4} + \frac{b}{3} = 4$, write the equation in standard form.

Q.2 A) Complete the activity (2 marks)

1) Complete the table to draw the graph of $2x - 3y = 3$,

X	-6	☐
y	☐	1
(x, y)	☐	☐

2. Solve the following to find the value of following determinant.

$\begin{vmatrix} 3 & -2 \\ 4 & 5 \end{vmatrix}$ = 3 × ☐ — ☐ × 4 = ☐ + 8 = ☐

3) Complete the activity to find the value of x

$3x + 2y = 11$ ---- (I) and $2x + 3y = 4$ ------(II)

Solution: Multiply equation (I) by ----- and equation (II) by -----.

☐ × $(3x + 2y = 11)$ ∴ $9x + 6y = 33$

$\square \times (2x + 3y = 4) \quad \therefore 4x + 6y = 8$

subtract (II) from (I),

$\square\ x = 25$

$\therefore x = \square$

4) If (2, 0) is the solution of 2x + 3y = k then finds the value of k by completing the activity

Solution: (2,0) is solution of the equation 2x +3y = k

Putting x = $\square$ and y = $\square$

$\therefore 2(\ \square\ ) + 3 \times 0 = k$

$\therefore 4 + 0 = k$

$\therefore k\ \square\ =$

5) To find the values of x and y for the equations x- 2 y =5 and 2 x+ 3 y =10 complete the activity.

$D = \begin{vmatrix} 1 & -2 \\ 2 & 3 \end{vmatrix}$ = 3 + 4 = 7

$D_x = \begin{vmatrix} 5 & -2 \\ 10 & 3 \end{vmatrix} = \square$

$D_y = \begin{vmatrix} 1 & 5 \\ 2 & 10 \end{vmatrix} = \square$

By Cramer's rule

$X = \frac{Dx}{D} = \square \quad y = \frac{Dy}{D} = \square$

Q. 2 B) Each of 2 marks

1) The difference between an angle and its complement is 10° find measure of larger angle.
2) Find the value of $\begin{vmatrix} 5 & 2 \\ 0 & -1 \end{vmatrix}$
3) For the equation $y + 2x = 19$ and $2x - 3y = -3$ Find the value of D

4) In the equation $2x - y = 2$ if $x = 3$ then find y=?

5) If $(2, -5)$ is the solution of the equation $2x - k\,y = 14$ then find k =?

6) For the equation $a + 2b = 7$ find a when $b = 4$

7) Decide whether $x = 2$ and $y = -1$ is the solution of the equation $2x + y = 3$ or not?

8) Using variables a *and* b write any two equations whose solution is $(0,2)$

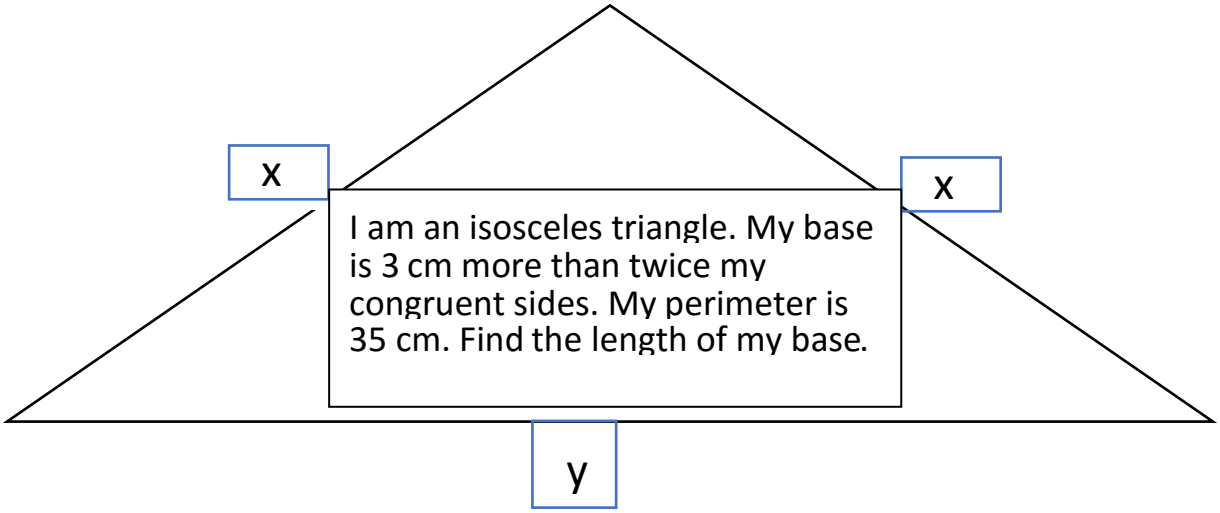
9) If $52\,x + 65\,y = 183$ and $65\,x + 52\,y = 168$ then find $x + y$ =?

10) State with reason whether the point $(3, -2)$ will lie on the graph of the equation

$5\,m - 3\,n = -21.$

Q.3 A) Complete the activity.

1)



2) Complete the following table to draw the graph of $3\,x - 2\,y = 18$

X	0	4	2	-1
Y	-9	------	-------	----
x, y	(0,-9)	(--,--)	(--,--)	----

3) The sum of the two-digit number and the number obtained by interchanging the digits is 132. The digit in the ten's place is 2 more than the digit in the unit's place. Complete the activity to find the original number.

Activity: Let the digit in the unit's place is y and the digit in the ten's place is x.

∴ The number = $10\,x + y$

∴ The number obtained by interchanging the digits = □

∴ The sum of the number and the number obtained by interchanging the digits = 132

∴ 10 x + y + 10 y + x = □

∴ x + y = □ (I)

, By second condition,

Digit in the ten's place = digit in the unit's place + 2

∴ x - y = 2 . . . (II)

Solving equation (I) and (II)

∴ x = □ y = □

Ans: The original number = □

Q.3 B) Each of 3 marks

1) Solve the given simultaneous equations graphically x + y = 5 and y = 5,
2) Ajay is younger than Vijay by 3 years. The sum of their ages is 25 years, what is the age of Ajay.
3) Solve by Cramer's rule, 3x – 4y = 10; 4x + 3y = 5
4) Difference between two numbers is 3, the sum of three times the bigger number and two times the smaller number is 19. Then find the numbers.
5) Solve: 4m – 2n = - 4; 4m + 3n =16
6) Solve: 99x + 101y = 499; 101x + 99y = 501

7) The length of the rectangle is 5 more than twice its breadth. The perimeter of a rectangle is 52 cm then find the length of the rectangle.

8) The graph of the equations 2 $x - y - 4 = 0$ and $x + y + 1 = 0$ intersect each other in point P (a, b) then find the coordinates of P?

9) The solution of the equation $a\,x$ + b y + 5 = 0 and $b\,x - a\,y$ − 12 = 0 is (2, -3) Find the values of a and b.

10) A person starts a job with some fixed salary and yearly increment. After 4 years his salary is Rs.15000 and after 10 years it becomes Rs.18000. Then find his monthly salary and increment.

11). For the equation 3 x − 2 y = 17 find the value of x when y = −1 and find the value of y when x = 3.

Q.4 Solve (Each of 4 marks)

1) Solve the following equations by graphical method, $x - y = 1$; 2 $x + y = 8$

2) Using the determinants given below form two linear equations and solve them.

D = $\begin{vmatrix} 5 & 7 \\ 2 & -3 \end{vmatrix}$ Dy = $\begin{vmatrix} 5 & 4 \\ 2 & -10 \end{vmatrix}$

3) For an A.P, $t_{17} = 54$ and $t_9 = 30$ find the first term(a) and common difference(d).

4) A train covered a certain distance at a uniform speed. If the train would have been 6 km/h faster, it would have taken 4 hours less than the scheduled time. And ,if the train was slower by 6 km/h it would have taken 6 hours more than the scheduled time. Find the length of the journey.

5) Solve, 0.4 x + 0.3 y = 1.7; 0.7 x − 0.2 y = 0.8

6) The semi perimeter of a rectangular shape garden is 36 m. The length of the garden is 4 m more than its breadth. Find the length and the breadth of the garden.

Q. 5 Solve (Each of 3 marks)

1) Form the simultaneous linear equation using the determinants.

D = $\begin{vmatrix} 4 & -3 \\ 2 & 5 \end{vmatrix}$ Dx = $\begin{vmatrix} 5 & -3 \\ 9 & 5 \end{vmatrix}$ Dy = $\begin{vmatrix} 4 & 5 \\ 2 & 9 \end{vmatrix}$

2) I held a number 75 in my mind.

Write any condition showing the relation between their digits.

Write the condition showing relation between the number and the number obtained by interchanging the digits.

3) Write any two linear equations in two variables in which the value of one variable is 12 and the other 10.

4) From the railway station I took a rickshaw to go home. It is decided that I have to pay Rs. X for the first kilometre and for each kilometre Rs. Y for the next. For 10 kilometres the fare is Rs. 40 and for 16 kilometres fare is Rs. 58. Find the fare for the first kilometre.

2.Quadratic Equations

Q 1 A) Multiple choice questions (for 1 mark each) :

Choose the correct alternative answer for each of the following sub questions and write the correct alphabet.

1) Which of the following is a quadratic equation?

   A) $X^3+5X^2+X+3=0$ B) $4X^2-3X-5=0$ C) $X+5=0$ D) $4X^5 = 0$

2) Which of the following is not a quadratic equation?

   A) $2X^2-X+3=0$ B) $4X^2-3X=0$ C) $X^3-5X+3=0$ D) $4X^2 = 0$

3) If the root of the given quadratic equation are real and equal then find the value of 'k' $X^2 + 2X + k = 0$.

   A) 1 B) -1 C) 2 D) -2

4) What is the value of discriminant for the quadratic equation $X^2 – 2X - 3 = 0$?

   A) -16 B) 16 C) 8 D) 4

5) Which of the following quadratic equation has roots -3 and -5 ?
   A) $X^2-8X+15=0$ B) $X^2-8X-15=0$ C) $X^2+8X+15=0$ D) $X^2+8X15=0$

6) If one of the roots of quadratic equation $X^2 – kX + 27 = 0$ is 3 then find the value of 'k'.
   A) 10 B) 12 C) -12 D) 16
7) Degree of quadratic equation is always ----------.
   A) 1 B) 2 C) 3 D) 4

Q 1 B) Examples for 1 mark :

1) Write the given quadratic equation in standard form and also write the values of a, b and c .

   $4y^2 – 3y = -7$

2) Write the roots of following quadratic equation.

$(p - 5)(p + 3) = 0$

3) If $a = 1, b = 4, c = -5$ then find the value of $b^2 - 4ac$.

4) If $b^2 - 4ac > 0$ and $b^2 - 4ac < 0$ then write the nature of roots of the quadratic equation for each given case.

5) Write the given quadratic equation in standard form.

$m(m - 6) = 9$

Q 2 A) Activity based questions for 2 marks each:

1) Complete the following activity to solve the given quadratic equation by factorization method. Activity: $X^2 + 8x - 20 = 0$

$X^2 + (....) - 2x - 20 = 0$

$X(x+10) - (....)(x+10) = 0$

$(x + 10)(.....) = 0$

$X = \ldots\ldots$ or $x = 2$

2) Complete the following activity to find the value of discriminant for quadratic equation $4x^2 - 5x + 3 = 0$. Activity: $4x^2 - 5x + 3 = 0$ $\quad a = 4, b = \ldots\ldots, c = 3$

$b^2 - 4ac = (-5)^2 - (\ldots.) \times 4 \times 3$

$= (\ldots.) - 48$

$b^2 - 4ac = \ldots\ldots$

3) If one of the root of quadratic equation $X^2 + kx + 54 = 0$ is -6 then complete the following activity to find the value of 'k'.

Activity: one of the roots of the quadratic equation $X^2 + kx + 54 = 0$ is -6

Therefore let's take $x = ...$

$(-6)^2 + k(-6) + 54 = 0$

$(.....) - 6k + 54 = 0$

$-6k + ... = 0$ $\quad k = ...$

4) To decide whether 1 is a root of quadratic equation $X^2 + 4x - 5 = 0$ or not complete the following activity.

Activity: when $x = (....)$ $\quad$ L.H.S.

$= 1^2 + 4(\ldots\ldots) - 5$

$= 1 + 4 - 5$

= (….) – 5

= ……..

= R.H.S.

Therefore x = 1 is a root of quadratic equation $X^2 + 4x - 5 = 0$.

Q 2 B) Examples for 2marks each:

Solve the following quadratic equation by factorization method.

$3p^2 + 8p + 5 = 0$

1) If one of the roots of quadratic equation $X^2 – kx – 15 = 0$ is -3 then find the value of ‘k’.
2) If the Roots of a quadratic equation are 4 and -5 then form the quadratic equation.
3) If roots of a quadratic equation $3y^2 + ky + 12 = 0$ are real and equal then find the value of ‘k’.
4) Roots of a quadratic equation are 5 and -4 then form the quadratic equation.

Q 3 A) Examples for 3 marks each:

1) Complete the following activity to solve the given quadratic equation by formula method. $2x^2 + 13x + 15 = 0$

Activity : $2x^2 + 13x + 15 = 0$

a= (.....) , b = 13, c = 15

$b^2 – 4ac = (13)^2 - 4 \times 2 \times (\text{…….})$

= 169 – 120

$b^2 – 4ac = 49$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(\ldots\ldots) \pm \sqrt{49}}{4}$$

$$x = \frac{-13 \pm (\ldots.)}{4}$$

$$x = \frac{6}{4} \quad or \quad x = \frac{-20}{4}$$

X = (….) or X = (….)

2) Complete the following activity to solve the given word problem. Sum of squares of two consecutive even natural numbers is 244 then find those numbers.

Activity: let the first even natural number be X,

Therefore its consecutive even natural number will be = (.....)

By the given condition,

$X^2 + (x+ 2)^2 = 244$

$X^2+X^2+4x+4 – (....) = 0$

$2x^2 + 4x – 240 = 0$

$X^2 + 2x – 120 = 0$

$X^2+ (……..) – (……..) – 120 = 0$

$X (x+12) – (…..) (x+12) = 0$

$(x + 12) (x – 10) = 0$

$X = (……) / X = 10$

But natural number cannot be negative x = -12 is not possible.

Therefore first even natural number is x = 10.

Second even consecutive natural number = x+ 2= 10+ 2= 12.

Q 3 B) Examples for 3 marks each:

1) If the roots of the given quadratic equations are real and equal then find the value of 'k'.

$kx (x-2) + 6 = 0$

2) Mukund has Rs. 50 more than Sagar. If the product of the amount they have is 15,000 then find the amount each has.

3) Solve the following quadratic equation.

$\sqrt{3}\, x^2 + \sqrt{2}\, x – 2\sqrt{3} = 0$

4) Solve the following quadratic equations by formula method.

a) $5m^2 – 4m -2 = 0$

b) $Y^2 + \frac{1}{3} y = 2$

5) Form a quadratic equation if the roots of the quadratic equation are

$2 + \sqrt{7}$ and $2 - \sqrt{7}$.

Q 4) Examples for 4 marks each :

1) Present age of mother of Manish is 1 year more than 5 times the present age of Manish. Four years before If the product of their ages was 22 then find the present age of Manish and his mother.
2) In an orchard there are total 200 trees. If the number of trees in each column is more by 10 than the number of trees in each row then find the number of trees in each row.
3) If the roots of the given quadratic equation are real and equal then find the value of 'm'.

   $(m-12)\,x^2 + 2\,(m-12)\,x + 2 = 0$

4) Solve the following quadratic equation.

$$\frac{1}{4-P} - \frac{1}{2+P} = \frac{1}{4}$$

5) Sum of the roots of the quadratic equation is 5 and sum of their cubes is 35 then find the quadratic equation.

Q 5) Examples of 3 marks each:

1) Form a quadratic equation such that one of its roots is 5. Form a quadratic equation for it and write. (For the formation of word problem you can use quantities like age, rupees or natural numbers.) (sample solution for the above example is given below students can take another number to form another example)

   Solution: We need one of the solutions of quadratic equation as 5. Then we can take another root as any number like positive or negative number or zero. Here I am taking another root of quadratic equation as 2.
   Then we can form a word problem as below,
   Smita is younger than her sister Mita by 3 years (5-2= 3). If the product of their ages is (5 x 2 = 10). Then find their present ages. (to form a word problem 1 mark)

   Let the age of Mita be x,

   Therefore age of Smita = x-3 (1 mark for this)
   By the given condition,
   $X(x-3) = 10$
   $X^2 - 3x - 10 = 0$ (to form a quadratic equation 1 mark)

3.Arithmetic Progression

- **• Question for 1 Mark.**

A) Choose the correct alternative answer for each of the following sub questions.

1. In an Arithmetic Progression 2,4,6,8,……..the common difference d is…….
   (A) 8 (B) 6 (C) 2 (D) -2
2. What is the common difference of the sequence 0,-4,-8,-12 ?
   (A) 4 (B) -4 (C) 8 (D) -8
3. For an A.P. 5,12,19,26,..... a=?
   (A) 12 (B) 26 (C) 19 (D) 5
4. A set of numbers where the numbers are arranged in a definite order, like the natural numbers, is called a .....
   (A) index (B) numbers (C) line (D) sequence
5. First four terms of an A.P., are……whose first term is -2 and common difference is -2.
   (A)-2,0,2,4 (B)-2,4,-8,16 (C)-2,-4,-6,-8 (D)-2,-4,-8,-16
6. 1,4,7,10,13..... Next two terms of this A.P. are…….

   (A) 16,19 (B) 10,7 (C) 19,22 (D) 16,18

7. Find d of an A.P. whose first two terms are -3 and -4.

   (A) 7 (B) 4 (C) -7 (D) -3

8. If third term and fifth term of an A.P. are 13 and 25 respectively, find its 7^{th} term.
   (A) 30 (B) 33 (C) 37 (D) 38
9. Find t_3 = ? in an A.P. 9,15,21,27
   (A) 27 (B) 21 (C) 15 (D) 9
10. In an A.P., 0,-4,-8,-12.....find t_2 = ?
    (A) -8 (B) -4 (C) -12 (D) 0

B) Solve the following sub questions.

1. Decide whether the given sequence 2,4,6,8.....is an A.P.
2. Find a and d for an A.P., 1,4,7,10.....
3. Write the formula of the sum of first n terms for an A.P.
4. Find t_n if a=20 आणि d=3

5. Find t_5 if a=3 आणि d=-3
6. t_n = 2n-5 in a sequence, find its first two terms.
7. Find first term of the sequence t_n=2n+1
8. Find two terms of the sequence t_n=3n-2
9. Find common difference of an A.P.,0.9,0.6,0.3.....
10. Find d if t_9=23 व a=7.

- **Question for 2 Marks.**

A) complete the following activity

1)Find the sum of first 1000 positive integers.

Activity :- Let 1+2+3+------+1000

Using formula for the sum of first n terms of an A.P.,

S_n= ☐

$S_{1000} = \frac{\square}{2}(1+1000)$

$= 500 \times 1001$

= ☐

Therefore, Sum of the first 1000 positive integer is ☐

2) Which term of following A.P. is -940.

50,40,30,20.....

Activity:- Here a= ☐ d= ☐ t_n= -940

According to formula, t_n= a+(n-1)d

-940 = ☐

n = ☐

3) For an A.P., If t_1= 1 and t_n= 149 then find S_n.

Activitry :- Here t_1= 1, t_n= 149, S_n= ?

$S_n = \frac{n}{2}$ (☐+☐)

$= \frac{n}{2} \times$ ☐

= ☐ n

4) t_{19} = ? for the given A.P., 9,4,-1,-6.....

Activity :- Here a=9, d = ☐

t_n = a+(n-1)d

t_{19}= 9+(19-1)☐

= 9+ ☐

= ☐

5) Common difference, d = ? for the given A.P., 7,14,21,28.....

Activity :- Here t_1=7, t_2=14, t_3=21, t_4= ☐

t_2 - t_1= ☐

t_3 - t_2= 7

t_4 - t_3= ☐

Therefore, common difference d=☐

B) Solve the following.

1. Decide whether the following sequence is an A.P. or not.

   3, 5, 7, 9, 11, ...

2. Find first four terms of an A.P., whose first term is 3 and common difference is 4.
3. 1, 6, 11, 16.....Find the 18^{th} term of this A.P.
4. In an A.P. a=2 and d=3, then find S_{12}.
5. Find first four terms of the sequence $t_{n=}$n+2.
6. In an A.P., a=10 and d= -3 then find its first four terms.
7. 1, 7, 13, 19.....find 18^{th} term of this A.P.
8. In an A.P. a=4 and d=0, then find first five terms.
9. If a=6 and d=10, then find $S_{10.}$
10. Decide whether the given sequence 24,17,10, 3.....is an A.P.? If yes find its common term (t_n).

- **Question for 3 Marks**

  A) complete the following activity

1) how many two-digit numbers are divisible by 5?

Activity :- Two-digit numbers divisible by 5 are, 10,15,20.....95.

Here, d=5, therefore this sequence is an A.P.

Here a=10, d=5, T_n=95, n=?

t_n = a+(n-1 ☐)

☐ = 10+(n-1)×5

☐ = (n-1)×5

☐ = (n-1)

therefore n=☐

there are ☐ two-digit numbers divisible by 5.

2) Kalpana saves some amount every month. In first three months she saves Rs.100, Rs.150 and Rs.200 respectively. In how many months will she save Rs.1200?

Activity :- Kalpana's monthly saving is Rs.100,Rs.150,Rs.200.....Rs.1200

Here d=50.Therefore this sequence is an A.P.

a=10, d=50, t_n=☐ n=?

t_n = a+(n-1) ☐

☐ = 100+(n-1)×50

$\frac{\square}{50}$ = n-1

n = ☐

therefore, she saves Rs.1200 in ☐ months.

3) Determine the sum of first 100 terms of given A.P. 12,14,16,18,20.....

Activity :- here, a=12, ☐ n=100, S_{100}=?

$S_n = \frac{n}{2}$ [☐ + (n - 1) d]

$S_{100} = \frac{\square}{2}$[24+(100 - 1) d]

= 50 (24 +☐)

= ☐

4) Find the sum of natural numbers between 1 to 140, which are divisible by 4.

Activity :- Natural numbers between 1 to 140 divisible by 4 are,

4,8,12,16,.....136

Here d=4, therefore this sequence is an A.P.

a=4, d=4, t_n=136, S_n= ?

t_n = a+(n-1)d

☐ = 4+(n-1)×4

☐ = (n-1)×4

n = ☐

Now,

$S_n = \frac{n}{2} + [a + t_n]$

S_n =17 × ☐

S_n = ☐

Therefore, the sum of natural numbers between 1 to 140, which are divisible by 4 is ☐

5) Decide whether 301 is term of given sequence 5,11,17,23,.....

Activity :- Here, d = ☐ therefore this sequence is an A.P.

a= 5, d= ☐

Let nth term of this A.P. be 301.

t_n = a + (n-1) ☐

301 = 5 + (n-1)×6

301 = 6n-1

n = $\frac{302}{6}$ = ☐

But n is not positive integer

Therefore, 301 is ☐ the term of sequence 5,11,17,23.....

B) Solve the following sub questions.

1. Find S_{10} if a=6 and d=3
2. 12,16,20,24.....Find 25^{th} term of this A.P.
3. If t_n=2n-5 is the nth term of an A.P., then find its first five terms.
4. Find the sum of three-digit natural numbers, which are divisible by 4.
5. Merry got a job with salary Rs.15000 per month. If her salary increases by Rs.100 per month, how much would be her salary after 20 months?
6. The n^{th} term of an A.P 5,8,11,14..... is 68. Find n=?
7. What is the sum of an odd numbers between 1 to 50.
8. For an A.P., $t_{4=}$12 and its common difference d=-10, then find $t_{n.}$
9. Find 27th and n^{th} term of given A.P. 5,2,-1,-4.....
10. Find the first terms and common difference of an A.P. whose t_8=3 and t_{12}=52.

- **Question for 4 marks**

Solve the following sub questions.

1. Sum of first 55 terms of an A.P. is 3300. Then find its 28^{th} term.
2. Find the sum of numbers between 1 to 140, divisible by 4.
3. In a 'Mahila Bachat Gat', Sharvari invested Rs.2 on first day, Rs.4 on second day and Rs.6 on third day. If She saves like this, then what would be her total savings in the month of February 2010?
4. Find the sum of odd natural numbers from 1 to 101.
5. Shubhankar invested in a national savings certificate scheme. In the first year he invested Rs.500, in the second year Rs.700, in the third year Rs.900 and so on. Find the total amount that he invested in 12 years.
6. A merchant borrows Rs.1000 and agrees to repay its interest Rs.140 with principal in 12 monthly instalments. Each instalment being less than the preceding one by Rs.10. Find the amount of the first first instalment.
7. Find $t_{21,}$ if S_{41} = 4510 in an A.P.
8. In an A.P. t_{10}=57 and t_{15}=87 then find t_{21}.
9. If Rs.3900 will have to repay In 12 monthly instalments such that each instalment being more than the preceding one by Rs.10, then find the amount of the first and last instalment.
10. Find the next 4 terms of the sequence $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{3}$ also find S_n.

4. FINANCIAL PLANNING

Q.1 (A) Attempt the following MCQ with correct answer (1 mark each)

1) GST on LPG cylinder is .....

(A) 5% (B) 0% (C) 12% (D) 18%

2) Trading between GSTIN holder and consumer is termed as

(A) BB (B) B2B (C) BC (D) B2C

3) If the face value of the share is Rs.100 and market value is Rs.150. if Rate brokerage is 0.5%. The selling price of 1 share is .....

(A) `Rs. 149.25 (B) Rs. 99.5 (C) Rs.150.75 (D) Rs. 100.5

4) 70 shares of FV 100 each are purchased for MV Rs.130 then the sum invested is.....

(A) Rs. 9750 (B) Rs. 9100 (C) Rs. 13000 (D) Rs. 6000

5) If the face value of share is Rs.100 when market value was Rs 90. Company declared 20% dividend. The dividend per share is .....

(A) Rs.24 (B) Rs.20 (C) Rs. 300 (D) Rs.150

6) The rate of GST on mobile phone is 12% then the rate of central GST is .....

(A) 12% (B) 1.2% (C) 36% (D) 6%

7) In GST, all goods are classified by given numerical code called ..... code.

(A) HSN (B) GSTIN (C) SAC (D) NAV

8) If FV =MV the share is at .....

(A) discount (B) par (C) Premium (D) None of these

9) When trader collects GST at the time of sale, it is called .....

(A) CGST (B) Output tax (C) Input tax (D) SGST

10) If FV <MV the share is at .....

(A) discount (B) par (C) Premium (D) None of these

11) If FV >MV the share is at .....

(A) discount (B) par (C) Premium (D) None of these

Q.1 (B) Solve the following example (1 mark each)

1) Surya Electronic sold a washing machine set to a customer. The rate of GST on Washing machine is 28%, then find the rate of CGST and SGST.

2) The rate of CGST on certain article is 9% then find the rate of GST & SGST.

3) The taxable price of a water purifier is Rs8000. The rate of CGST is 6%. Find the total GST printed in the tax invoice.

4) On an article CGST is 3.5%, then what is the rate of SGST? Also, find the rate of GST.

Q.2 (A) complete the following activity (2 marks each)

1) Nazama is a proprietor of a firm, registered under GST. She has paid GST of Rs. 12,500 on purchase and collected Rs.14,750 on sale.To find the amount of GST payable complete the acrivity.

Solution:

Input tax (ITC) = ☐

Output tax = ☐

GST Payable = Output tax – ☐

= 14,750 – 12,500

Payable GST = ☐

2) Complete the following table by writing correct number or words?

Sr.no.	Face value	Share is at	Market value
1.	Rs.50	Premium Rs 11	
2.	Rs.20		Rs.16
3		At par	Rs.40

3) Complete the following table by writing correct number or words?

Sr.no.	Face value	Share is at	Market value
1.	Rs.100		Rs.100
2.	Rs.20		Rs.30
3	Rs.50		Rs.40

Q.2 (B) Solve the following example (2 marks each)

1) Sou. Minakshi purchase of a cosmetic box including GST is Rs 512. The rate of GST is 28%. Find the taxable price of the cosmetic box

2) Mr.Jagadishprasad invest a sum of Rs. 75,000 in shares of face value 100 at Rs. 125 market value, then how many shares were purchased?

3) Rupali purchase a shares of market value Rs.300. If the brokerage rate is 0.5% then find the purchase value of the share by Rupali .

4) A share is sold for the market value of Rs 2000.Brokerage is paid at the rate of 0.5%. What is the amount received after the sale ?

5) Arogya Medico paid total GST of Rs.2,00,700 at the time of purchase and collected GST 2,22,200 at the time of sale during 1st of July 2021 to 31st July 2021. Find the GST payable by Arogya Medico.

Q.3 (A) Complete the following activity (3marks each)

1) From the information, prepare the tax invoice for business to customer. (B2C)Write any name, address, date, etc.

Supplier: M/s ..... Address.....Date .....

Invoice No. ..... GSTIN.....

Name of products:

(i) Pickle bottle Rs.75, 1 piece, Rate of GST 12%, HSN1509

(ii) Tea powder pouch Rs. 60, 1 piece, Rate of GST 5% , HSN4807

(iii) Perfume bottle Rs.225, 1 piece, Rate of GST 18%, HSN8519

2) Fill in the blanks given in the contract note of sale-purchase of shares. (B - buy S - sell)

No.of shares	**M.V.of shares**	**Total Value**	**Brokerage 0.2%**	**18% GST on Brokerage**	**Total Value of shares**
75 B	Rs.200				
100S	Rs.45				

3) Pushpmala has invested Rs.24000 and purchased shares FV Rs.20 at a premium of Rs.4 Find the number of shares she purchased. Complete the given activity.

Solution:

FV = Rs.20, Premium = Rs.4

MV = FV + ☐

= ☐ + ☐

= ☐

Number of shares = $\frac{\text{Total investment}}{\text{M.V.}}$

= $\frac{24000}{\square .}$

= ☐ shares

4) Prepare Business to consumer (B2C) tax invoice using given information. Write the name of the supplier, address, state, date of invoice number, GSTIN etc. as per your choice. Perform the following activities:

Supplier: M/s. ..... Address: .....

State : ..... Date : ..... Invoice No.: .....GSTIN: .....

Particulars : (i) Rate of mobile battery – Rs. 300, Rate of GST 12%, HSN 8507,

(ii) Rate of Headphone – Rs. 700, Rate of GST 18%, HSN 8518, 1.

Q.3 (B) Solve the following (3 marks each)

1) Mr. Trivedi invested Rs.45,000 in shares of face value Rs.100 at market value Rs.125. If the company declared 30% dividend at the end of the year, what was the income from dividend?

2) A share of the value Rs. 100 was purchased for Rs.150. The company declared a dividend of 60%. What is the rate of return on investment?

3) Mr. Hariram investment in shares is given below. Find his total investment in shares.

Company A: 200 shares, face value = Rs.100 Premium = Rs. 25

Company B: 500 shares, face value = Rs.100 Market Value = Rs. 200

Company C: 50 shares, face value =Rs 100 Discount =Rs.20

4) Hamid purchased some educational stationary and paid GST of Rs.1800. He sold all educational stationary Nishaben and collected GST of Rs.2100. Find the GST CGST and SGST to be paid

5) If 50 shares of FV Rs.20 were purchased for MV of Rs.30. Company declared 30% dividend on the shares then find (i) Sum invested (ii) Dividend received

(ii) Rate of return

Q. 4 & 5 Solve the following (3 or 4marks)

1) M/S Sing Trader purchased refrigerator for Rs.10,000 taxable amount. They sold it to Amrutbhai for Rs. 12,000 taxable amount. The rate of GST is 28%, then find the CGST and SGST to be paid by M/S Sing Trader

2) Mr.Jitendra invested an equal amount in two companies by purchasing equity shares with market price Rs. 160 and Rs.175 each. At the end of the year, both the companies declared the dividend of 15% and 20% each. In which company was her investment profitable?

3) Mr. Purushottam invested Rs. 1,20,354 in shares of face value Rs. 100 each at Rs.120 market value. He gave brokerage of 0.25% and GST of 18% on brokerage then how many shares are purchased by him?

4) M/s Atharv traders sold a computer printer to Shraddha Electronics for taxable price of Rs. 10,000. Shraddha Electronics sold it to Mr.Omkarnath at Rs.12,500 taxable price and retailer sold it to customer at Rs.14,500 taxable price. The rate of GST is 18%, then find the CGST and SGST applicable at every transaction.

5. Probability

Q.1 (A) There are four alternative answers for each of the following subquestions. Choose the correct alternative answer for each of the following questions and write the alphabet. (1 mark question)

1) Which of the following number cannot represent a probability?

A) 0.66 B) 1.5 C) 0.15 D) 0.7

2) If n(A) = 5 , P(A)=$\frac{1}{2}$ then n(**S**) = ?

A) 10 B) $\frac{3}{5}$ C) $\frac{4}{5}$ D) $\frac{1}{3}$

3) When a dice is thrown the number of sample points in the sample space are .....

A) 4 B) 6 C) 2 D) 52

4) In how many ways a card can be drawn from a well shuffled pack of playing cards,

A) 4 B) 1 C) 26 D) 52

5) What is the probability of the event that a number chosen from 1 to 50 is a prime number ?

A) $\frac{3}{10}$ B) $\frac{1}{2}$ C) $\frac{1}{4}$ D) $\frac{3}{25}$

6) Which of the following options shows the highest probability.

A) $\frac{4}{5}$ B) 0.83 C)% 58 D) $\frac{1}{2}$

7) When two dice are thrown the number of sample points in the sample space are .....

A) 6 B) **12** C) 36 D) 52

Q.1 (B) Solve the following sub-questions. (1 mark question)

1) Write a sample space if two coins are tossed simultaneously**.**

2) Write a sample space when a die is thrown.

3) In a set of 25 cards, each card bears only one number from 1 to 25. One card is drawn randomly. Write the sample space for this random experiment?

4) A two digit number is formed with digits 2, 3, 5 without repetition, Write the sample space?

5) write the event in the set form for the following random experiment.

‘ If one die is thrown**,** the number obtained on the upper face is even.’

Q.2 (A) Complete the following activity. (2 marks question)

1) If one die is rolled then find the probability of the following event by completing the activity.

Event A: Number on the upper face is prime.

Activity : Let 'S' is the sample space.

S = {1, 2, 3, 4, 5, 6} ∴ n(S) = 6

Event A : Prime number on the upper face.

A = { ……..} ∴ n(A) = 3

$$P(A) = \frac{\square}{n(S)} \quad \text{…… (Formula)}$$

$$= \frac{\square}{6}$$

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

2) Two coins are tossed simultaneously. Write the sample space (S) and expected sample points in the given events by completing the activity.

i) Event A : to get at least one head.

ii) Event B : to get no head.

Activity : Let 'S' is the sample space , when two coins are tossed simultaneously.

∴ S = { □ ,HT, TH, □ }

Event A : to get at least one head.

∴ A = { HH, □, TH }

Event B : to get no head.

∴ B = { □ }

3) A card is drawn from a well shuffled pack of 52 playing cards. Find the probability of i) Event A : Card drawn is a red card.

Activity : Let 'S' is the sample space. ∴ n(S) = 52

Event A : Card drawn is a red card.

∴ Total red cards = ( ) hearts + 13 diamonds

∴ n(A) = ( )

$$\therefore P(A) = \frac{\square}{n(S)} \quad \text{…… Formula}$$

$$P(A) = \frac{26}{52}$$

$$P(A) = \square$$

4) In Adarsh High School , out of 30 students in a class 3 students wear glasses(spectacles). If a student in the class is randomly selected, find the probability that he or she wears glasses(spectacles) by completing the following activity.

Activity : There are a total of 30 students in the class.

$\therefore$ n(S) = $\square$

Event : A Selected student wears glasses(spectacles)

$\therefore$ n(A) = $\square$

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

$$P(A) = \square$$

Q.2 (B) Solve the following sub-questions. (2 marks question)

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

2) If two coins are tossed, find the probability of event getting head on both the coins.

3) If one die is rolled then find the probability of event that the number on the upper face is greater than 6?

4) If three coins are tossed simultaneously, find the probability of the event to get no head

5) There are 30 cards in a box, each bearing one of the numbers from 1 to 30. One card is drawn at random from the box. Find the probability of event that the card drawn shows a number which is a multiple of 5.

Q.3 (A) Complete the following activity. (3 marks question)

1) A box contains 5 strawberry chocolates, 6 coffee chocolates and 2 peppermint chocolates. If one of the chocolates is picked from the box at randomly, Find the probability of the following events by completing the activity.
(i) Event A : it is a coffee chocolate. (ii) Event B : it is a peppermint chocolate.

Activity : Let 'S' is the sample space.

$\therefore$ n(S) = 5+6+2 = 13

(i) Event A : it is a coffee chocolate

$\therefore$ n(A) = $\square$

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

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

Event B : it is a peppermint chocolate.

$\therefore n(B) = \square$

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

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

Q.3 (B) Solve the following sub-questions. (3 marks question)

1) If two dice are rolled simultaneously, find the probability of the following events.
   i) Event A : The sum of the digits on the upper faces is at least 10.
   ii) Event B : The sum of the digits on the upper faces is 33.

2) If Three coins are tossed simultaneously, find the probability of the following events.
   i) Event A : To get no heads.
   ii) Event B : To get at least two heads.

3) If One coin and one die are thrown simultaneously, find the probability of the following events.
   i) Event A : To get a tail and an even number.
   ii) Event B: To get head and an odd number.

4) A balloon vendor has 2 red, 3 blue and 4 green balloons. He wants to choose one of them at random to give it to Pranali. What is the probability of the event that Pranali gets,
   (i) a red balloon
   (ii) a blue balloon.

Q.4 Solve the following sub-questions. (4 marks question)

1) What is the probability that an ordinary year has 53 Sundays?

2) What is the probability that a leap year has 53 Sundays?

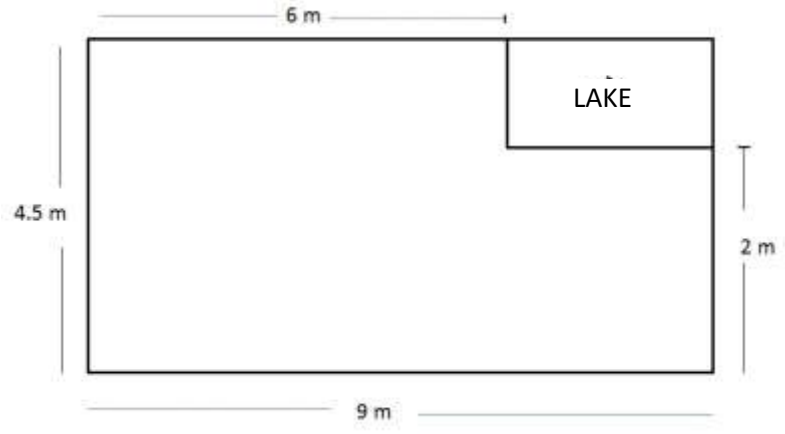
3) A box contains 36 cards, bearing only one number from 1 to 36 on each. If one card is drawn at random, find the probability of an event that the card drawn bears,
   (i) a complete square number.
   (ii) a prime number.
   (iii)a number divisible by 3.

Q.5 Creative questions of 3 marks

1) A bag contains 5 white balls and some blue balls. If the probability of drawing a blue ball is double that of a white ball, determine the number of blue balls in the bag .

2)The faces of a die bear numbers 0, 1, 2, 3, 4, 5. If the die is rolled twice, then find the probability that the product of digits on the upper face is zero.

3) A missing helicopter is reported to have crashed somewhere in the rectangular region shown in the figure .What is the probability that it crashed inside the lake shown in the figure ?



4) Three horses A ,B and C are in a race. A is twice as likely to win as B and B is twice as likely to win as C What is their individual probability of winning?

5) A bag contains 8 red balls and some blue balls. If one ball is drawn randomly the probability of drawing a red ball to a blue ball are in the ratio 5 : 2, determine the probability of drawing a blue ball from the bag.

6. Statistics

Q.1 A) MCQ (each of 1 mark)

1) Following table shows the percentage of donors as per the blood group, the central angle for the group 'O' is ----------

Blood group	O	A	B	AB
% Of persons	60	20	15	5

a) 72° b) 108° c) 216° d) 54°

2) If the following information that is budget of a family is shown as a pie graph, then central angle for clothing is --------

Head	Rent	Clothing	Education	Saving	Food	Miscellaneous
Expenditure	Rs.2400	Rs.1800	Rs.1200	Rs.1200	Rs. 4800	Rs.600

a) 72° b) 54° c) 36° d) 18°

3) The class mark of the class 15 – 20 is --------

a) 17.5 b) 15.5 c) 17 d) 18.5

4) If assumed mean (A) = 57.5 $\sum fidi = -10$ and $\sum fi = 80$ then Mean = ------

a) 57.625 b) 57.125 c) 57.375 d) 57.275 5)

5) Which of the following is not a measure of central tendency?

a) Median b) deviation c) Mode d) Mean

6) If the mean of frequency distribution is 34.9, $\sum fixi = 1000 + a$, $\sum fi = 30$ then the value of a = ------

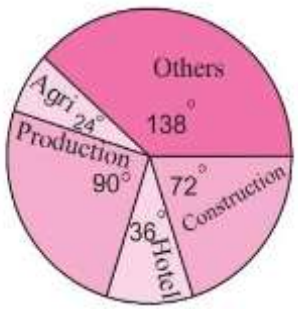
a) 47 b) 48 c) 42 d) 45

7) A box contains nails of different lengths as shown below, the median class will be -----

Length (in cm)	2.0 – 2.5	2.5 – 3.0	3.0 – 3.5	3.5 – 4.0	4.0 – 4.5
No. of nails	5	18	7	11	9

a) 2.5 – 3.0 b) 3.0 – 3.5 c) 3.5 – 4.0 d) 4.0 – 4.5

8) Look at the pie diagram showing number of skilled workers in different fields the number of workers in the production is ---------- if total number of workers is 10,000



a) 2000 b) 1500 c) 2500 d) 3500

9) Class marks in a grouped frequency table are useful to find . . .

a) Mean b) Median c) Mode d) All of these

10)The above data is to be shown by a frequency polygon. The coordinates of the points to show number of students in the class 130 – 140 are --------

Heights (in cm)	100 -110	110 -120	120 -130	130 -140	140 - 150
No. of students	6	8	14	10	4

a) (130,10) b) (135,10) c) (10,135) d) (10,130)

Q. 1B) Attempt the following sub questions.

1) Find the class mark of the class 55 – 60

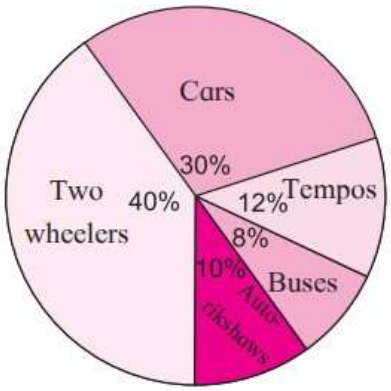
2) Write the Modal class

Class interval	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Frequency	30	35	40	75	15

3) Marks of 60 students in a class are tabulated below. For finding mode the Lower limit of modal class (L) = --------

Marks	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69
Number of students	3	8	16	12	10	8

4) Observe the adjacent pie diagram. It shows the percentages of number of vehicles passing a signal in a town between 8 am and 10 am Find central angle for cars.



5) The table given below gives the marks of 160 students In the school.

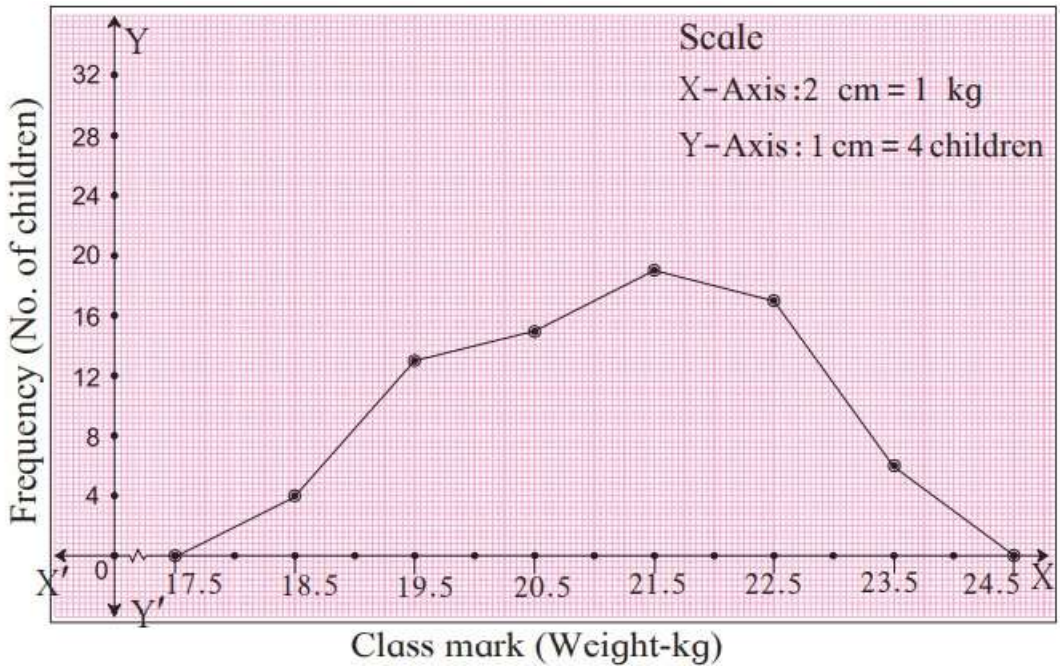
Marks	20 - 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 -90	90-100
No. of students	8	10	15	25	30	38	24	10

How many students are getting above 80 marks.

6) If the mean of the frequency distribution is 8.1 and $\sum f_i x_i$ = 132 + 5k, $\sum f_i$= 20 then find K.

Q. 2 A) Complete the following activities. (Each of 2 marks)

1) Observe the frequency polygon and complete the table.



Class	18–19	19–20	20–21	21–22	22–23	23–24
Class mark	18.5		20.5	21.5		23.5
Frequency	4	13	15	19	17	6
Coordinates of points	(18.5, 4)	(19.5,13)		(21.5,19)		(23.5,6)

2) Complete the following table to find the mean.

Weekly wages (Rupees)	Class mark (xi)	No. of workers (fi)	fixi
0—2000	1000	15	15000
2000—4000		35	105000
4000—6000	5000	50	25000
6000—8000	7000	20	140000
		N = 120	$\sum fixi$ =

$\sum fixi$

Mean = $\frac{\sum fi}{\sum f}$

= $\frac{\square}{120}$ = ----------

3) The following table shows causes of noise pollution. Complete the table to draw a pie diagram.

Causes	Percentage	Central angle
Construction	10%	
Traffic		180°
Aircraft take off	9%	
Industry	20%	
Trains	11%	39.6

4) Complete the following activity to find median.

Class (Student's marks)	No. of students fi	Cumulaive frequency less than the upper limit cf
0–20	4	4
20–40	20	24
40–60	30	54
60–80	40	94
80–100	6	100

Here , L = , N = 100, $\frac{N}{2}$ = 50, c.f. = 24 , f = 30, h = 20

Median = (Formula)

=

Median marks =

Q.2 B) Solve the following sub questions. (Each of 2 marks)

1) For the table given below find cumulative frequency table.

Daily No. of hours	8–10	10–12	12–14	14–16
Number of workers	150	500	300	50

2) Find the mode for the following frequency distribution.

Class	1 – 10	11 – 20	21 – 30	31 – 40	41 – 50
Frequency	2	3	5	7	1

Use formula: Mode = $L = \frac{f_0 - f_1}{2f_0 - f_1 - f_2} \times h$

3) Find mean of the following table.

Difference in ages(in years)	No. of couples (f_i)
0 – 2	1
2 – 4	2
4– 6	8
6 – 8	5
8 – 10	3
10 – 12	1

Q. 3 A) Complete the following activity. (Each of 3 marks)

1) The following table shows the funds collected by 50 students for flood affected people. Find the mean of the funds

Fund (Rupees)	0–1000	1000–1500	1500–2000	2000–3000
No. of students	6	24	18	2

Solution : Let A = 1250, examining all d_i, $\mathcal{J} = 250$.

Class Fund (₹)	Class mark x_i	$d_i = x_i - A = x_i - 1250$	$u_i = \frac{d_i}{\mathcal{J}}$	Frequency f_i	$f_i u_i$
0–1000	500	☐	–3	6	–18
1000–1500	1250→A	0	0	24	0
1500 – 2000	1750	500	2	18	☐
2000–3000	2500	1250	☐	2	10
Total				$\sum f_i = 50$	$\sum f_i u_i = 28$

$\overline{u} = \frac{\sum f_i u_i}{\sum f_i} = \frac{28}{50} =$ ☐

$\overline{u}\,\mathcal{J} =$ ☐ $\times 250 =$ ☐

$\overline{X} = A + \mathcal{J}\,\overline{u} = 1250 + 140 = 1390$

∴ the average of the funds is ₹ 1390.

2) Complete the activity to find mean by direct method.

Weekly wages (Rupees)	Class mark (x_i)	No. of workers (f_i)	$x_i f_i$
1000 – 2000	1500	25	37500
2000 – 3000		45	112500
3000 – 4000	3500	50	
4000 – 5000	4500	30	
		N = 150	$\sum f_i x_i$ =

Mean = $\frac{\Sigma f i x i}{\Sigma f i}$

$= \frac{\square}{150} =$ $\square$

3) Complete the following activity to find median marks of the students

Class (Student's marks)	No. of students $f i$	Cumulaive frequency less than the upper limit cf
0–20	4	4
20–40	20	24
40–60	30	54
60–80	40	94
80–100	6	100

Here, L = $\square$, N = 100, $\frac{N}{2}$ = 50, c.f. = $\square$, f = 30, h = 20

Median = $L + \frac{\frac{N}{2} - c.f}{f} \times h$ (Formula)

= $\square$ (keeping values in the formula)

= $\square + \frac{\square}{30} \times 20$

Median marks = $\square$

4) The table below gives the ages of 120 drivers of cars involved in accidents during a certain year. Complete the table and draw a pie diagram.

Age of driver (in years)	Number of drivers	Central angle
Under 20	25	75°
20 – 40	50	
40 – 60	35	105°
Over 60	10	30°

Q. 3 B) Solve the following. **(**Each of 3 marks)

1) Draw the histogram.

Wages (in ₹)	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
No. of workers	3	8	12	6	4

2) In a school the weekly pocket money of 50 students is as follows. Find mode of pocket money.

Pocket money (in ₹)	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
No. of students	2	8	12	14	8	6

3)Draw frequency polygon of the following distribution

Weight of packet	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Number of packets	3	5	8	5	4

Q. 4 Attempt the following sub questions.(Each of 4 marks)

1) Find the mean by step deviation method.

Class	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Frequency	5	6	8	12	6	3

2) If the mean of the weight of packet is 12.9 gm. Find the value of b

Weight of packet	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Number of packets	3	b	8	5	4

3) Find the mode for the following distribution.

Ages (in years)	1 – 10	11 – 20	21 – 30	31 – 40	41 – 50
No. of children	2	3	5	7	1

4) Calculate the missing frequency from the following distribution, if the median of distribution is 24.

Age in years	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of persons	5	25	[redacted]	18	7

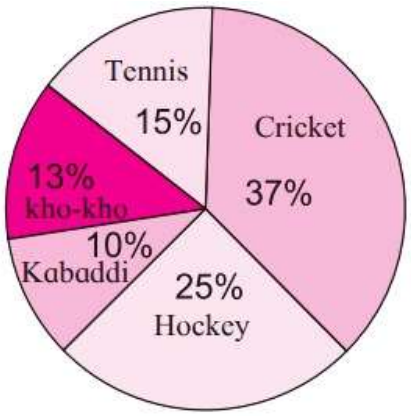
5) Draw histogram and frequency polygon.

Max. temp.	24–28	28–32	32–36	36–40	40–44
No. of towns	4	5	7	8	6

Q. 5 Solve the following sub question. (Each of 3 marks)

1) The angles of a triangle ABC are in the ratio 1:2:3, show this information in pie diagram.

2) 120 students of standard 10 were asked which game they like and from this information pie chart is prepared, observe the pie diagram and answer the questions.



a) How many students like to play Tennis?

b) What will be central angle for Kho-Kho?

c) How many students like Kabaddi?

3) Observe the frequency polygon given alongside

Prepare frequency table and find mean of the net asset value.