



Corporate Office : Aakash Tower, 8, Pusa Road, New Delhi-110005
Ph.: 011-47623456

Term Test 2022-23

Std: X MHB

Subject: Algebra

Marks: 40

Duration: 2hrs

Topics Covered: Linear Equations in two Variables, Quadratic Equation Arithmetic Progression, Financial planning, Probability, Statistics.

Q.1 (A) Solve the following questions (any four). (4x1= 4)

- (i) Find the solution of pair of equations $2x + y - 6 = 0$ and $4x - 2y - 4 = 0$.
- (ii) Represent the situations in the form of quadratic equations:- The product of two consecutive positive integers is 306. We need to find the integers.
- (iii) Write first four terms of the A.P. when the first term $a = 5$ and the common difference $d=3$.
- (iv) Market value of a share is Rs. 200. If the brokerage rate is 0.3% then find the purchase value of the share.
- (v) Find mean of first 20 natural numbers.

(B) Solve the following questions (any two). (2x2= 4)

- (i) A bag contains 3 red balls and 5 black balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is
 - (a) red?
 - (b) not red?
- (ii) Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m. Find the dimensions of the garden.
- (iii) 30th term of the A.P: 10,7, 4, ..., is.

Q.2 (A) Choose the correct option:-

(4x1= 4)

- (i) GST system was introduced in our country from . . .
(A) 31st March 2017
(B) 1st April 2017
(C) 1st January 2017
(D) 1st July 2017
- (ii) Which of the following cannot be the probability of an event?
(A) $\frac{2}{3}$ (B) -1.5 (C) 15% (D) 0.7
- (iii) Which of the following is a quadratic equation.
(A) $(x + 1)^2 = 2(x - 3)$
(B) $(x - 2)(x + 1) = (x - 1)(x + 3)$
(C) $(x - 3)(x + 1) = x(x + 5)$
(D) $x^2 + 3x + 1 = (x - 2)^2$
- (iv) The pair of linear equation represents.
(A) Intersecting lines
(B) Parallel lines
(C) Coincident lines
(D) None of these
- (v) The mean of the data: 4, 10, 5, 9, 12 is;
(A) 8
(B) 10
(C) 9
(D) 15

(B) Solve the following questions (any two).

(2x2= 4)

- (i) Find the roots of the following quadratic equation by factorisation:
 $x^2 - 3x - 10 = 0$
- (ii) Find the number of terms in given A.P. 7, 13, 19, ..., 205.
- (iii) The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides.

Q.3 (A) Solve the following questions (any two).

(2x2= 4)

- (i) A survey was conducted by a group of students as a part of their environment awareness program, in which they collected the following data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house.

Number of Plants	0-2	2-4	4-6	6-8	8-10	10-12	12-14
Number of Houses	1	2	1	5	6	2	3

- (ii) The difference between two numbers is 26 and one number is three times the other. Find them.
- (iii) A trader from Surat, Gujarat sold cotton clothes to a trader in Rajkot, Gujarat. The taxable value of cotton clothes is Rs. 2.5 lacs. What is the amount of GST at 5% paid by the trader in Rajkot?

Q.4 Solve the following questions (any three).

(3x3= 9)

- (i) A game of chance consists of spinning an arrow which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8 (see Fig.), and these are equally likely outcomes. What is the probability that it will point at.
- an odd number?
 - a number greater than 2?
 - a number less than 9?
- (ii) The following data gives the information on the observed lifetimes (in hours) of 225 electrical components:

Lifetime (in hours)	0-20	20-40	40-60	60-80	80-100	100-120
Frequency	10	35	52	61	38	29

Determine the Mode (modal lifetimes of the components).

- (iii) For an A.P., $a = 7$, $a_{13} = 35$, find d and S_{13} .
- (iv) A fraction becomes $\frac{9}{11}$, if 2 is added to both the numerator and the denominator. If, 3 is added to both the numerator and the denominator it becomes $\frac{5}{6}$. Find the fraction.

Q.5 Solve the following question (any one).

(4x1= 4)

- (i) Rohan's mother is 26 years older than him. The product of their ages (in years) 3 years from now will be 360. We would like to find Rohan's present age.

- (ii) If the median of a distribution given below is 28.5 then, find the value of x & y .

Class Interval	Frequency
0-10	5
10-20	X
20-30	20
30-40	15
40-50	Y
50-60	5
Total	60

Q.6 Solve the following question (any one).

(3x1= 3)

- (i) Joseph purchased following shares, Find his total investment.
Company A: 200 shares, FV = Rs. 2 Premium = Rs. 18.
Company B: 45 shares, MV = Rs. 500
Company C: 1 share, MV = Rs. 10,540.
- (ii) Find the sum of the odd numbers between 0 and 50.