BCM SCHOOL, BASANT AVENUE, DUGRI, LUDHIANA.
SEPTEMBER ASSIGNEMENT- 2025-26
CLASS- X (MATHEMATICS)

SECTION –A (MULTIPLE CHOICE QUESTIONS)

1. The $(n-1)^{th}$ term of an A.P. is given by 7,12,17, 22,… is
(a) 5n + 2 (b) 5n + 3 (c) 5n – 5 (d) 5n – 3

2. The coordinates of mid-point P which divides the line joining the points $A(a+2, b-2)$ and $B(-a-2, b-2) is$:
(A) $(a, b-2)$ (B) $(0, b-2)$ (C) $(0, b)$ (D) $(0, -2)$

3. If the roots of $px^2 + qx + 2 = 0$ are reciprocal of each other, then
(a) P = 0 (b) p = -2 (c) p = ±2 (d) p = 2

4. Assertion: In a right ΔABC, right angled at B, if tanA=1, then 2sinA.cosA=1
Reason: cosecA is the abbreviation used for cosecant of angle A.
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

SECTION B(2 MARKS QUESTIONS)

5. A milkman has two vessels containing 720 ml and 405 ml of milk. Milk from these vessels is poured into glasses of equal capacity to their brim. Find the minimum number of glasses that can be filled?

6. A card is drawn from a well shuffled deck of 52 cards. Find the probability that the card drawn is:
(A) Neither a king nor queen.
(B) Non face card of red color.
(C) A card of spade or an ace.
(D) A card of clubs
(E) 10 of hearts.

SECTION – C (3 MARKS QUESTIONS)

7. Find the sum of those integers from 1 to 500 which are multiples of 2 or 5.
OR
The ratio between the sum of n terms of two A.P.'s is (3n+8) : (7n+15). Find ratio of their 12^{th} terms.

8. If two vertices of an equilateral triangle are (0,0) and $(3,\sqrt{3})$, find the third vertex.

9. Prove that: $2(\sin^6\theta + \cos^6\theta) - 3(\sin^4\theta + \cos^4\theta) + 1 = 0$

SECTION – D (5 MARKS QUESTIONS)

10. From the top of a tower h m high angles of depression of two objects, which are in line with foot of the tower are α and β (β>α). Find the distance between the two objects.

11. In a class test, marks obtained by 120 students are given in the following frequency distribution. If it is given that mean is 59, find the missing frequencies x and y:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of students	1	3	7	10	15	x	9	27	18	y

12. The sum of 4 consecutive numbers in an AP is 32 and the ratio of the product of the first and the last term to the product of two middle terms is 7:15. find the number.

SECTION – E (CASE STUDY)

13. **CASE STUDY:**

	In an auditorium seats were arranged in rows and columns. The number of rows were equal to the number of seats in each row. When the number of rows were doubled and the number of seats in each row was reduced by 10, the total number of seats increased by 300. (A) If x is taken as number of row in original arrangement, then frame the equation that described the situation? (B) How many number of rows are there in original arrangement? (C) Calculate the number of seats in auditorium in original arrangement and also after re-arrangement? **OR** How many number of columns are there in the auditorium after re-arrangement?
14.	**CASE STUDY :** In a pathology lab, a culture test has been conducted. In the test, the number of bacteria taken into consideration in various samples is all 3-digit numbers that are divisible by 6, taken in order.  Based on the above information, solve the following questions: (A) How many bacteria are considered in the seventh sample? (B) How many samples should be taken into consideration? (C) Find the total number of bacteria in the first 15 samples. **OR** Find the number of samples in which sum of bacteria is 840.