ICSE – 9^{TH} MATHS **Total Marks: 40**

Question 1:

1) Find the value of : [3 M]
   $3 \sin^2 30° + 2 \tan^2 60° - 5 \cos^2 45°$
2) A point P (2, -1) is equidistant from the points (a, 7) and (-3, a). Find a.
   [3 M]
3) The length of a rectangular verandah is 3 m more than its breadth. The numerical value of its area is equal to the numerical value of its perimeter.

   (i) Taking x as the breadth of the verandah, write an equation in x that represents the above statement.

   (ii) Solve the equation obtained in (i) above and hence find the dimensions of the verandah. [4 M]

Question 2:

1) Mean of 20 observations (numbers) is 30. If one number is excluded, the mean of remaining numbers becomes 28. The excluded number is :
   [3 M]

2) Two adjacent sides of parallelogram are 24 cm and 18 cm. If the distance between the longer sides is 12 cm; find the distance between the shorter sides. [3 M]

3) The following are the marks obtained by 70 boys in a class test.
   [4 M]

Marks	No. of boys
30 - 40	10
40 - 50	12
50 - 60	14
60 - 70	12
70 - 80	9
80 - 90	7
90 - 100	6

Calculate the mean by Short-cut method

Question 3:

1) The following data have been arranged in ascending order. If their median is 63, find the value of x.

34, 37, 53, 55, x, x + 2, 77, 83, 89 and 100. [3 M]

2) The centre of a circle is (2a, a - 7). Find the value (values) of a, if the circle passes through the point (11, -9) and has diameter $10\sqrt{2}$ units. [3 M]

3) Two adjacent sides of a parallelogram are 28 cm and 26 cm. If one diagonal of it is 30 cm long; find the area of the parallelogram. Also, find the distance between its shorter sides.[4 M]

Question 4:

1) The radius of a circle is 17.0 cm and the length of perpendicular drawn from its center to a chord is 8.0 cm. Calculate the length of the chord. [3 M]
2) Find the co-ordinates of the points on the y-axis, which are at a distance of 10 units from the point (-8, 4). [3 M]
3) Prove that the points A (1, -3), B (-3, 0) and C (4, 1) are the vertices of an isosceles right-angled triangle [4 M]