COMPREHENSIVE REVISION TEST (UNIT TEST) SERIES - 2023

TEST No. 12

MPUT

Std. X

MATHEMATICS - UNIT 2

Time : 45 mts

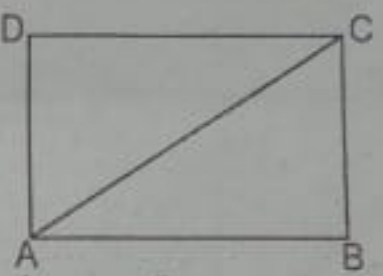
| Chapters : 3.Mathematics of chance 4.Second degree equations | Total Score : 20

Instructions :

- *Answer the questions based on instructions.*
- *Give explanations wherever necessary.*
- *Answer the questions according to the score and time.*

*Answer **any three** questions from 1 to 5. Each carries 2 scores.* (3 x 2 = 6)

1. Perimeter of a rectangle is 40cm and its area is 84sq.cm.
   a) What is length + breadth?
   b) If length is x, what is breadth?
2. A pot contains 5 black beads and 7 white beads. Another pot contains 6 black beads and 8 white beads. If one bead is drawn from each pot without looking,
   a) write the number of possible pairs.
   b) what will be the probability of getting atleast one white bead?
3. Perimeter of a rectangle in the figure is 36cm.



   $AC = \sqrt{164}$ cm.
   a) What is AB + BC?
   b) Find the length of AB and BC.
4. a) What is the probability of getting 53 sundays in a non leap year?
   b) What is the probability of getting 53 sundays in a leap year?
5. The product of a number and 2 more than that is 120. What are the numbers?

*Answer **any two** questions from 6 to 8. Each carries 3 scores.* (2 x 3 = 6)

6. If x is a natural number,
   a) What number is to be added to $x^2 + 6x$ to get a perfect square?
   b) If $x^2 + ax + 25$ is a perfect square, which number is a?
7. A box contains 6 red beads and 5 white beads. Another box contains 8 red beads and 4 white beads. If one bead is taken from each box, then
   a) what is the number of possible pairs?
   b) what is the probability for both beads being red?
   c) what is the probability of getting at least one white bead?
8. Sum to 'n' terms of an arithmetic sequence is $2n^2 + 3n$. How many terms from the beginning are added to get the sum 275?

$(2 \times 4 = 8)$

*Answer **any two** questions from 9 to 11. Each carries 4 scores.*

9. a) Write a pair of sides of a rectangle with perimeter 60cm.

   b) Perimeter of a rectangle is 60cm and its area is 216 sq.cm. Find the length of its sides.

10. In a school, the total number of students in 10A division is equal to the total number of students in 10B. One student is to be selected from each division. Number of boys in 10A is 20. The probability of selecting a boy from 10A is $\frac{2}{5}$ and that of from 10B is $\frac{3}{5}$.

    a) How many students are there in 10A?

    b) How many boys are there in 10B?

    c) What is the probability of both the selected students being boys?

11. The length of a rod is 56cm. It is bent into a rectangle.

    a) What is the sum of length and breadth of the rectangle?

    b) If the length of diagonal of this rectangle is 20cm, then find the length and breadth of this rectangle.