Date: 7-7-23	MONTHLY TEST-2(2023-24)	Max Marks: 20
GRADE: X	MATEMATICS (041)	Time: 1 hours

GENERAL INSTRUCTIONS:

*This question paper contains four Sections A, B, C, and D. Each part is compulsory.
*Section A has Objective type questions and Sections B, C, and D have descriptive type questions
*Section A comprises 6 questions of 1 mark each
*Section B comprises10 questions of 2 marks each
*Section C comprises 10 questions of 3 marks each
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SECTIO N A **(5 × 1 = 5)**

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 1) Roots of quadratic equation $x^2 - 3x + 2 = 0$ are

   (a) 3   (b) −1   (c) 2   (d) 4

2) Values of k for which the quadratic equation $2x^2 - kx + k = 0$ has equal roots is

   (a) 0 only   (b) 4 only   (c) 8 only   (d) 0, 8

3) If nth term of an AP is given by
        $a_n = 2n + 3$ then common difference of an AP is

   (a) 2   (b) 3   (c) 5   (d) 1

4) The 10th term of an AP is 20 and the 19th term is 101.
        Then, the third term is
    (a) − 43   (b) − 61   (c) − 52   (d) 1

 5) **Assertion :** Arithmetic between 8 and 12 is 10.

   Reason : Arithmetic between two numbers 'a' and 'b' is
    given as $\frac{a+b}{2}$

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Which among the following statements about Assertion and Reason is correct.
 (a) both **Assertion** and **Reason** are **correct** and Reason is the **correct explanation** of Assertion.

 (b) both **Assertion** and **Reason** are correct, but Reason is **not the correct explanation** of Assertion.

 (c) If **Assertion** is **correct** but **Reason** is **incorrect**.

 (d) If **Assertion** is **incorrect** but **Reason** is **correct**

SECTION B

Answer the following questions: **(3 × 2 = 6)**

6) Find the sum of first 51 terms of an A.P whose second and third terms are 14 and 18 respectively**.**

7) Find the value of k for which the quadratic equation $9 x^2 + 8kx + 16$ has equal roots?

8) Solve: $6x^2 + 40 = 31x$.

SECTION C

Answer the following questions: **(3 × 3 = 9)**

9) Find the sum of first 40 positive integers divisible by 6 .

10) Is it possible to design a rectangular park of perimeter 80m and area 400 m^2 If so find its length and breadth.

11) Your friend Veer wants to participate in a 200m race. He can currently run that distance in 51 seconds and with each day of practice it takes him 2 seconds less. He wants to do in 31seconds .

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i) Which of the following terms are in AP for the given situation.

   a) 51,53,55….   (b) 51, 49, 47….

   c) –51, –53, –55….   (d) 51, 55, 59…

ii) What is the minimum number of days he needs to practice till his goal is achieved
    (a) 10   (b) 12

      (c) 11   (d) 9

iii) Which of the following term is not in the AP of the above given situation?

   (a) 41   (b) 30

   (c) 37   (d) 39

ANSWERS:1)c   2) d 3) a 4) a 5) a
6) S = 51/2 (2x10+50x4) = 5610
7) 64k² - 36x16 = 0 ; k = $\pm$3
8) 6x²-31x+40 = 0   ;   6x²-15x – 16x+40 = 0 : 3x(2x-5) – 8(2x-5)=0
 (3x-8)(2x-5) = 0 ; x = 8/3 , x = 5/2
9) 6,12,18,……..
  S₄₀ = 40/2 [2x6 + (40-1)6] = 20 (12+234) = 4920
10) 2(l+b) = 80   ; l+b = 40 ; b = 40-b
   l x b = 400 ; l (40-l) = 400   : l²-40l +400 = 0
   (l-20)² = 0   ; l = 20 and b = 20
11) i) b   ii) a   iii) b