INDIAN SCHOOL MUSCAT

SECOND PERIODIC TEST

MATHEMATICS - 041

CLASS: X   MAX. MARKS: 20
DATE: 09-05-2021   TIME ALLOWED: 40 MINUTES

INSTRUCTIONS:

1. Calculators are not allowed.
2. Question No 1 to 2 are Very short answer Type questions of 1 mark each.
3. Question No 3 to 6 are Short answer type – I questions of 2 marks each.
4. Question No 7 to 8 are Short answer type- II questions of 3 marks each.
5. Question No. 9 is on case study. The case study question has 5 case – based sub-parts. An examinee is to attempt any 4 out of 5 sub – parts(1 Mark each).

1.	Find a quadratic polynomial whose roots are $\sqrt{2}$ and $\sqrt{8}$.	1
2.	If the sum of the zeroes of the polynomial $p(x) = kx^2 + 2x + 3k$ is equal to their product ,find the value of "k"	1
3.	If -2 is a common zero of the polynomials $x^2 + px +q$ and $x^2 + mx + n$, prove that $\dfrac{n-q}{m-p} = 2$	2
4.	Find the value of "x" if $a + 1 = 0$ and $2x^2 + ax - 3 = 0$	2
5.	Find the zeroes of the polynomial $x^2 - 5$ and verify the relationship between the zeroes and the coefficients.	2
6.	If α and β are the zeros of the polynomial $f(x) = x^2 - 8x + k$, such that $\alpha - \beta = 4$, find the value of 'k'.	2
7	Is it possible to construct a rectangular field with perimeter 48 m and area 150 m^2 ? Justify your answer.	3
8.	The area of the following two paintings is same. The sides of the painting are represented as in the figure given below in terms of x. Find the value of x.	3

9. **Case Study Based Question**
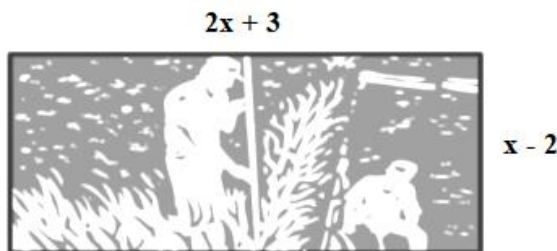
Small scale industries (SSI) are those industries in which manufacturing, providing services, productions are done on a small scale or micro scale. For example, Agarbatti making, Chalk making, Biodiesel production, Sugar candy manufacturing, Wood making, Rice mill, Potato chips making, Toy making, Microbrewery, Liquid soap making, Honey processing etc. Small scale industries play an important role in social and economic development of India.

A small-scale industry produces a certain packets of Agarbatti in a day. Number of Agarbatti packets prepared by each worker on a particular day was 3 more than twice the number of workers working in the industry. The number of Agarbatti packets produced in a particular day was 90.

Based on the above situation, answer (any 4 of) the following questions.

(i) If the number of workers working in the industry is x, what was the number of Agarbatti packets produced by each worker on that particular day?

   a) $2(x + 3)$ b) $2x + 3$ c) $3(x + 2)$ d) $2(x - 3)$

(ii) The quadratic equation representing the above situation is:

   a) $2x^2+3x+90=0$ b) $2x^2+3x - 90=0$

   c) $3x^2+2x - 90=0$ d) $3x^2+2x + 90=0$

(iii)   The nature of roots of the above Quadratic equation are

   a) Real and distinct roots   b) Real and equal roots

   c) No real roots   d) No Real roots

(iv)   Number of workers working in the industry is

   a) 10   b) 8   c) 6   d) 18

(v) Some workers were absent on a particular day resulting decrease in production of Agarbatti packets to 65 on that day. How many workers were present on that day?

   a) 4   b) 5   c) 6   d) 10