SHIKSHA CLASSES

Subject : Algebra | **QUESTION PAPER** | **Total Marks** : 20

Class : X | **2. Quadratic Equations** | **Time** : 1 Hour.

Q. 1 : A) Choose the correct alternatives of the following. **2**

1) General form of the quadratic equation is.

a) $ax + by + c$ b) $ax^2 + by + c$ c) $ax^2 + bx + c = 0$ d) None of the above

2) In a quadratic Equation if $b^2 - 4ac < 0$ then roots are

a) Equal b) Not real c) real and equal d) real and unequal

B) Write the following equation in its standard form. **1**

i) $2y = 10 - y^2$

Q. 2 : A) Solve any one. **2**

1) Find the value of discriminant $\sqrt{2}\,x^2 + 4x + 2\sqrt{2} = 0$

$\rightarrow$ $\sqrt{2}x^2 + 4x + 2\sqrt{2} = 0$

comparing with $ax^2 + bx + c = 0$

we get a = $\square$, b = $\square$, c = $\square$

$\Delta = \square$

$= (4)^2 - 4\sqrt{2} \times 2\sqrt{2}$

$= 16 - 16$

$= \square$

2) Solve by formula method

$x^2 + 6x + 5 = 0$

Q. 2 : B) Solve any one. **2**

1) Write the following quadratic equation in standard form.

$3m^2 = 2m^2 - 9$

$x^2 - 9 = 13.$

2) Factorise $m^2 - 14m + 13 = 0.$

Q. 3 : A) Solve Any one. **3**

1) Form the quadratic equation from the roots given below

$2 - \sqrt{5},\ \ 2 + \sqrt{5}$

2) If α and β are roots of $y^2 - 2y - 7 = 0$ then find.

1) $\alpha^2 + \beta^2$ 2) $\alpha^3 + \beta^3$

$\rightarrow \quad y^2 - 2y - 7 = 0$

comparing with $ax^2 + bx + c = 0$

$a = \square, b = \square, c = \square$

$\therefore \ \alpha + \beta = \frac{\square}{\square} = 2$

$\alpha \times \beta = \frac{\square}{\square} = -7$

1) $\alpha^2 + \beta^2 = \square - 2\alpha\beta$

$= (2)^2 - 2 \times (-7)$

$= 4 + 14$

$= 18$

2) $\alpha^3 + \beta^3 = \square - 3\alpha\beta(\alpha + \beta)$

$= (2)^3 - 3(-7)(2)$

$= 8 + 42$

$= 50$.

Q. 3 : B) Solve Any one. **3**

1) The sum of the squares of two consecutive even natural numbers is 100 then find the numbers.

2) Solve quadratic equation by using formula method

$m^2 - 14m + 13 = 0$

Q. 4 : Attempt any one of the following. **4**

1) Solve by completing square method

$5x^2 - 4x - 3 = 0$

2) A natural number is greater than three times its square root by 4. Find the number.

Q. 5 : Solve Any one **3**

1) The difference between the roots of equation $x^2 - 13x + k = 0$ is 7. Find k.

2) Solve by factorisation method.

$6\sqrt{3}\,x^2 + 7x = \sqrt{3}$

***