ONE TWO ACADEMY

STD 10 MATHEMATICS

Algebra Part - II (Ex 3.9 - 3.14)

Total:- 25 marks **Time:- 45 minutes**

Answer the following questions: **4 x 1 = 4**

1. Find the product of the roots for $x^2 + 3x = 0$.
2. Frame a quadratic equation to solve the following problem:

"If the difference between a number and its reciprocal is 24/5, find the equation to find the number ."

3. What is the nature of the roots if Discriminant < 0?
4. Prove $\alpha + \beta = -\frac{b}{a}$. (Hint use Quadratic formula method)

Answer any three of the following questions:- **3 x 2 = 6**

5. Solve $2x^2 - 2\sqrt{6}x + 3 = 0$.
6. Solve $\sqrt{a(a-7)} = 3\sqrt{2}$ using the factorisation method.
7. A flock of swans contained x^2 members. As the clouds gathered, 10x went to a lake and one-eighth of the members flew away to a garden. The remaining three pairs played about in the water. How many swans were there in total?
8. Determine the quadratic equation whose roots are $\frac{p+q}{p}$ and $\frac{p+q}{q}$.

Answer any three of the following questions:- **3 x 5 = 15**

9. Solve $\frac{x}{x-1} + \frac{x-1}{x} = \frac{5}{2}$.
10. Solve $\frac{5x+7}{x-1} = 3x + 2$ by completing the square method.
11. If a and b are real then show that the equations $(a-b)x^2 - 6(a+b) - 9(a-b) = 0$ are real and equal.
12. The roots of equation $x^2 + 6x - 4 = 0$ are α and β. Find the quadratic equation whose roots are

(i) $\frac{2}{\alpha}, \frac{2}{\beta}$ (ii) $\alpha^2\beta$ and $\alpha\beta^2$.