PRISM WORLD

Std.: 10 (English) **Maths - I** **Marks: 20**

Date: **Time: 1 hrs**

Chapter: 2

Q.1 Choose the carrect alternatives. **(3)**

1) Which one is a quadratic equation?

a. $\frac{5}{x} - 3 = x^2$ b. x (x + 5) = 2

c. n − 1 = 2n d. $\frac{1}{x^2}\left(x + 2\right) = x$

2) Which of the following is a quadratic equation?

a. (x - 2) (x + 1) = (x - 1) (x - 3)

b. $(x + 2)^3 = 2x (x^2 - 1)$

c. $x^2 + 3x + 1 = (x - 2)^2$

d. $8(x - 2)^3 = (2x - 1)^3 + 3$

3)

If $\frac{1}{2}$ is a root of the quadratic equation $4x^2 - 4kx + k + 5 = 0$, Then the value of k is

a. - 6 b. - 3 c. 3 d. 6

Q.2 Solve the following question. (Any Two) **(4)**

1) Determine nature of roots of the quadratic equations. $2x^2 - 5x + 7 = 0$

2) Solve the following quadratic equations by factorization method.

$2y^2 + 27y + 13 = 0$

3) Find the value of discriminant for following quadratic equations.

$x^2 + 7x - 1 = 0$

Q.3 Solve the following question. (Any Two) **(6)**

1) Solve the following quadratic equations by factorization.

$5m^2 = 22m + 15$

2) The roots of each of the following quadratic equations are real and equal, find k.

kx (x - 2) + 6 = 0

3) Determine the nature of roots of the following quadratic from their discriminant.

$3x^2 - 5x + 7 = 0$

Q.4 Solve the following question. (Any One) **(4)**

1) Pratik travels by boat 36 km down a river and back in 8 hours. If the speed of his boat in still water is 12 km/hr, find the speed of the river current.

2) In a flight of 3000 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 100 km/hr and consequently time of flight increased by one hour. Find the original duration of flight.

Q.5 Solve the following question. (Any One) **(3)**

1) Sum of the roots of a quadratic equation is double their product. Find k if equation is $x^2 - 4kx + k + 3 = 0$.

2)

If α and β are the roots of $x^2 + 5x - 1 = 0$ then find -

i) $\alpha^3 + \beta^3$ ii) $\alpha^2 + \beta^2$