RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

Grade : X   **Marks: 40**
marks

Chapter: Quadratic equations set 2   **Time: 90**
minutes

SECTION A

(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

1. What is the nature of roots of the quadratic equation $5y^2 – 4y + 3 = 0$?

   (a) Four real roots   (b) Two real roots   (c) No real root   (d) One real root

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

   (A) 0 only   (B) 4   (C) 8 only   (D) 0, 8

3. The quadratic equation $2x^2 – \sqrt{5}x + 1 = 0$ has

   (A) two distinct real   (B) two equal real roots   (C) no real roots   (D) more than 2 real roots

4. $(x^2 + 1)^2 – x^2 = 0$ has

   (A) four real roots   (B) two real roots   (C) no real roots   (D) one real root.

5. The value(s) of k for which the quadratic equation $2x^2 + kx + 2 = 0$ has equal roots, is

   (A) 4   (B) ± 4 (C) -4 (D) 0

6.

7.

8.

9.

10

SECTION B

(This section comprises of very short answer type-questions (VSA) of 2 marks each.)

11. Find the solution of the equation $\dfrac{16}{x} – 1 = \dfrac{15}{x + 1}$

12. Find the value of K for which the given equation has real and equal roots. $2x^2 – 10x + k = 0$

13. Without solving the following quadratic equation, find the value of m for which the given equation has real and equal roots. $x^2 + (m – 1) x + 2 (m + 5) = 0$.

SECTION C

(This section comprises of short answer type questions (SA) of 3 marks each)

14 Solve the following equation for x, $9(x^2 + 1/x^2) - 9(x + 1/x) - 52 = 0$.

15 Using quadratic formula, solve for x. $9x^2 - 3(a + b)x + ab = 0$

16 Find the roots of the quadratic equation $3x^2 + 2\sqrt{6}x + 2 = 0$.

SECTION D

(This section comprises of long answer-type questions (LA) of 5 marks each)

17 Had Ajita scored 10 more marks in her mathematics test out of 30 marks, 9 times these marks would have been the square of her actual marks. How many marks did she get in the test?

18 A train travels at a certain average speed for a distance of 63 km and then travels a distance of 72 km at an average speed of 6 km/h more than its original speed. If it takes 3 hours to complete the total journey, what is its original average speed?

19 At present Asha's age (in years) is 2 more than the square of her daughter Nisha's age. When Nisha grows to her mother's present age, Asha's age would be one year less than 10 times the present age of Nisha. Find the present ages of both Asha and Nisha.