

By. Er. Dharmendra Sir

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# DPM CLASSES

6th to 10th (Math's & Science), 11th & 12th (Physics, Chemistry, Math's)

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**TEST - PAPER (CBSE/NCERT)**

## QUADRATIC EQUATIONS

**SESSION -2024-25**

**CLASS - 10<sup>th</sup>**

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Time : 1 hr

Quadratic Equations

mm!

Q. 1. Multiple choice questions :

(i) Write the standard form of a quadratic equation:

(a)  $ax^2 + bx + c = 0$

(b)  $ax^2 + bx + c$

(c)  $ax^2 + bx + c = 0$

(d)  $a^2x + bx + c^2 = 0$

(ii) No real roots of quadratic equation  $ax^2 + bx + c = 0$  if

(a)  $b^2 + 4ac > 0$

(b)  $b^2 - 4ac = 0$

(c)  $b^2 - 4ac > 0$

(d)  $b^2 - 4ac < 0$

(iii) If  $\frac{1}{2}$  is a root of the equation  $x^2 + Kx - \frac{5}{4} = 0$ , then the value of K is:

(a) 2

(b) -2

(c)  $\frac{1}{4}$

(d)  $\frac{1}{2}$

(iv) If  $\alpha$  and  $\beta$  are the zeroes of the quadratic polynomial  $ax^2 + bx + c$ , then the value of  $\alpha + \beta$  is:

(a)  $-\frac{b}{a}$

(b)  $\frac{b}{a}$

(c)  $\frac{a}{b}$

(d)  $-\frac{a}{b}$

(v) The discriminant of the quadratic equation  $x^2 - 4x + 4 = 0$  is

(a) 4

(b) 2

(c) 0

(d) 1

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Q.2. Answer in one word / sentence. —

- (i) What is the name of the equation in which the variable has maximum two power?
- (ii) In a quadratic equation  $ax^2 + bx + c = 0$ , what the term  $(b^2 - 4ac)$  is called.
- (iii) Write the formula of the discriminant of the quadratic equation  $ax^2 + bx + c = 0$
- (iv) Is  $(x+1)^2 = 2(x-3)$  a quadratic equation?
- (v) If  $a, b$  and  $c$  are real numbers and  $a \neq 0$ , then the quadratic polynomial is of which form?

Q.3. Check whether the following are quadratic equations:

(i)  $(x+1)^2 = 2(x-3)$       (ii)  $x^2 - 2x = (-2)(3-x)$

Q.4. Find the discriminant and nature of the quadratic equations

(i)  $2x^2 - 4x + 8 = 0$       (ii)  $2x^2 - 3x + 5 = 0$

Q.5. Find the roots —

(i)  $2x^2 + x - 6 = 0$       (ii)  $6x^2 - x - 2 = 0$

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Q.6. Find two numbers whose sum is 27 and Product is 182.

Q.7. Find two consecutive positive integers, sum of whose squares is 365.

Q.8. A natural number when increased by 12, equals 160 times its reciprocal. Find the number.

Q.9. Altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides.

Q.10. A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article. If the total cost of the production on that day was ₹90. Find the number of articles produced and the cost of each article.

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