CHAPTER-4

QUADRATIC EQUATIONS

QUESTION BANK

1. Find the value of k for which the quadratic equation $2x^2 + kx + 3 = 0$ has two real equalroots.

2. Find the value of k for which the quadratic equation $kx(x – 3) + 9 = 0$ has two real equalroots.

3. Find the value of k for which the quadratic equation $4x^2 – 3kx + 1 = 0$ has two real equal roots..

4. If –4 is a root of the equation $x^2 + px – 4 = 0$ and the equation $x^2 + px + q = 0$ has equal roots,find the value of p and q.

5. If –5 is a root of the equation $2x^2 + px – 15 = 0$ and the equation $p(x^2 + x) + k = 0$ has equalroots, find the value of k.

6. Find the value of k for which the quadratic equation $(k – 12)x^2 + 2(k – 12)x + 2 = 0$ has tworeal equal roots..

7. Find the value of k for which the quadratic equation $k^2x^2 – 2(k – 1)x + 4 = 0$ has two realequal roots..

8. If the roots of the equation $(a – b)x^2 + (b – c)x + (c – a) = 0$ are equal, prove that $b + c = 2a$.

9. Prove that both the roots of the equation $(x – a)(x – b) + (x – b)(x – c) + (x – c)(x – a) = 0$ arereal but they are equal only when $a = b = c$.

10. Find the positive value of k for which the equation $x^2 + kx + 64 = 0$ and $x^2 – 8x + k = 0$ willhave real roots.

11. Find the value of k for which the quadratic equation $kx^2 – 6x – 2 = 0$ has two real roots.

12. Find the value of k for which the quadratic equation $3x^2 + 2x + k = 0$ has two real roots.

13. Find the value of k for which the quadratic equation $2x^2 + kx + 2 = 0$ has two real roots.

14. Show that the equation $3x^2 + 7x + 8 = 0$ is not true for any real value of x.

15. Show that the equation $2(a^2 + b^2)x^2 + 2(a + b)x + 1 = 0$ has no real roots, when a ≠ b.

16. Find the value of k for which the quadratic equation $kx^2 + 2x + 1 = 0$ has two real anddistinct roots.

17. Find the value of p for which the quadratic equation $2x^2 + px + 8 = 0$ has two real anddistinct roots.

18. If the equation $(1 + m^2)x^2 + 2mcx + (c^2 – a^2) = 0$ has equal roots, prove that $c^2 = a^2(1 + m^2)$.

19. If the roots of the equation $(c^2 – ab)x^2 – 2(a^2 – bc)x + (b^2 – ac) = 0$ are real and equal, showthat either $a = 0$ or $(a^3 + b^3 + c^3) = 3abc$.

20. Find the value of k for which the quadratic equation $9x^2 + 8kx + 16 = 0$ has two real equalroots.

21. Find the value of k for which the quadratic equation $(k + 4)x^2 + (k+1)x + 1 = 0$ has two realequal roots.

22. Prove that the equation $x^2(a^2 + b^2) + 2x(ac + bd) + (c^2 + d^2) = 0$ has no real root, if ad ? bc.

23. If the roots of the equation $x^2 + 2cx + ab = 0$ are real unequal, prove that the equation $x^2 – 2(a + b) + a^2 + b^2 + 2c^2 = 0$ has no real roots.

24. Find the positive values of k for which the equation $x^2 + kx + 64 = 0$ and $x^2 – 8x + k = 0$ willboth have real roots.

25. Find the value of k for which the quadratic equation $(k + 4)x^2 + (k + 1)x + 1 = 0$ has equalroots.

26. Find the value of k for which the quadratic equation $x^2 – 2(k + 1)x + k^2 = 0$ has real andequal roots.

27. Find the value of k for which the quadratic equation $k^2x^2 – 2(2k – 1)x + 4 = 0$ has real andequal roots.

28. Find the value of k for which the quadratic equation $(k + 1)x^2 – 2(k – 1)x + 1 = 0$ has real andequal roots.

29. Find the value of k for which the quadratic equation $(4 – k)x^2 + (2k + 4)x + (8k + 1) = 0$ hasreal and equal roots.

30. Find the value of k for which the quadratic equation $(2k + 1)x^2 + 2(k + 3)x + (k + 5) = 0$ hasreal and equal roots.