<u>**SECTION A**</u>

1 If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is
(A)   10   (B) −10   (C) 5   (D) −5

2 If one of the zeroes of the quadratic polynomial $(k–1) x^2 + k x + 1$ is −3, then the value of k is
 (A) 4/ 3   (B) −4/ 3   (C) 2/ 3   (D) −2

3 If the zeroes of the quadratic polynomial $x^2 + (a + 1) x + b$ are 2 and −3, then
(A) a = −7, b = −1   (B) a = 5, b = −1   (C) a = 2, b = − 6   (D) a = 0, b = − 6

4 The zeroes of the quadratic polynomial $x^2 + 99x + 127$ are
 (A) both positive   (B) both negative   (C) one positive & one negative (D) None

5 A quadratic polynomial, whose zeroes are −3 and 4, is
(A) $x^2 − x + 12$ (B) $x^2 + x + 12$ (C) $2x^2 + 2x −24$ (D) None

6 The pair of equations 5x − 15y = 8 and 3x − 9y = 24/5 has
 (A) one solution   (B) two solutions   (C) infinitely many solutions   (D) no solution

7 The pair of equations x + 2y + 5 = 0 and −3x − 6y + 1 = 0 have
(A) a unique solution   (B) exactly two solutions (C) infinitely many solutions (D) no solution

8. If a pair of linear equations is consistent, then the lines will be
(A) parallel   (B) always coincident   (C) intersecting or coincident (D) always intersecting

 9. The pair of equations y = 0 and y = −7 has
 (A) one solution   (B) two solutions   (C) infinitely many solutions (D) no solution

10. The pair of equations x = a and y = b graphically represents lines which are
(A) parallel   (B) intersecting at (b, a) (C) coincident   (D) intersecting at (a, b)

11 Which of the following equations has 2 as a root?
(A) $x^2 − 4x + 5 = 0$ (B) $x^2 + 3x − 12 = 0$ (C) $2x^2 − 7x + 6 = 0$ (D) None

12 If 1/2 is a root of the equation $x^2 + kx − 5/4 = 0$, then the value of k is
 (A) 2   (B) − 2   (C) 1/4   (D) 1/2

13 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

14 The quadratic equation $2x^2 − 5x + 1 = 0$ has
 (A) two distinct real roots (B) two equal real roots   (C) no real roots   (D) None

15   If the quadratic equation $x^2 −x + 1 = 0$ represents the shape of a headlight of a car then nature of roots is
 A) two distinct real   B) two equal real   C) no real roots   D) None

1) Find a quadratic polynomial whose sum and product of zeroes are $\sqrt{2}$ and 3 respectively.
2) Find the zeroes of the polynomial $mx^2 + (m + n)x + n$.
3) If m and n are zeroes of the polynomial $3x^2 + 11x - 4$, find the value of $\frac{m}{n} + \frac{n}{m}$
4) Find the sum and product of zeroes of $p(x) = 2(x^2 - 3) + x$.
5) Find a quadratic polynomial, the sum of whose zeroes is 4 and one zero is 5.
6) If α and β are the zeroes of $2x^2 + 5(x - 2)$, then find the product of α and β.
7) Find a quadratic polynomial, the sum and product of whose zeroes are 5 and 3 respectively.
8) Solve the following system of linear equations graphically: $2x - 3y - 17 = 0$; $4x + y - 13 = 0$. Shade the region bounded by the above lines and x-axis.
9) Solve the following system of linear equations graphically: $2x + 3y = 4$; $3x - y = -5$. Shade the region bounded by the above lines and y-axis
10) The difference between two numbers is 14 and the difference between their squares is 448, then find the numbers.
11) Sum of two numbers is 50 and their difference is 10, then find the numbers.
12) The sum of the digits of a two digit number is 9. If 27 is added to it, the digits of the numbers get reversed. Find the number.
13) The sum of a two-digit number and the number formed by interchanging its digit is 110. If 10 is subtracted from the original number, the new number is 4 more than 5 times the sum of the digits of the original number. Find the original number.
14) If twice the son's age in years is added to the mother's age, the sum is 70 years. But if twice the mother's age is added to the son's age, the sum is 95 years. Find the age of the mother and her son.
15) Find the value of k for which the quadratic equation $(k - 12)x^2 + 2(k - 12)x + 2 = 0$ has two real equal roots..
16) Find the value of k for which the quadratic equation $k^2x^2 - 2(k - 1)x + 4 = 0$ has two real equal roots..
17) If the roots of the equation $(a - b)x^2 + (b - c)x + (c - a) = 0$ are equal, prove that $b + c = 2a$.
18) The sum of the squares of the two positive integers is 208. If the square of the larger number is 18 times the smaller number, find the numbers.
19) Two numbers differ by 3 and their product is 504. Find the numbers.
20) Seven years ago Varun's age was five times the square of Swati's age. Three years hence Swati's age will betwo fifth of Varun's age. Find their present ages.
21) The product of Rohit's age five years ago with his age 9 years later is 15 in years. Find his present age.
22) The product of Archana's age five years ago with her age 8 years later is 30 in years. Find her present age.
23) The speed of a boat in still water is 8 km/hr. It can go 15 km upstream and 22 km downstream in 5 hours. Find the speed of the stream.
24) In a flight for 6000 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 400 km/hr and consequently time of flight increased by 30 minutes. Find the original duration of flight.

1. A passenger train takes 2 hours less for a journey of 300 km if its speed is increased by 5 km/hr from its usual speed. Find its usual speed.	
2. If two pipes function simultaneously, a reservoir will be filled in 12 hours. One pipe fills the reservoir 10 hours faster than the other. How many hours will the second pipe take to fill the reservoir?	
3. A man's age is three times the sum of the ages of his two sons. After 5 years his age will be twice the sum of the ages of his two sons. Find the age of the man.	