QUARDATIC EQUATIONS

1. Solve the following quadratic equation: $x^2 + 4x - 8 = 0$
   Give your answer correct to one decimal place.
   (Use mathematical tables if necessary.) [2023]

2. If 3 is a root of the quadratic equation $x^2 - px + 3 = 0$ then p is equal to:
   (a) 4
   (b) 3
   (c) 5
   (d) 2 [2023]

3. One of the roots of the quadratic equation x2 – 8x + 5 = 0 is 7.3166. The root of the equation correct to 4 significant figures is: [1]
   (a) 7.3166
   (b) 7.317
   (c) 7.316
   (d) 7.32 [2021 Semester-1]

4. Which of the following quadratic equations has 2 end 3 as its roots? [1]
   (a) $x^2 - 5x + 6 = 0$
   (b) $x^2 + 5x + 6 = 0$
   (c) $x^2 - 5x - 6 = 0$
   (d) $x^2 + 5x - 6 = 0$ [2021 Semester-1]

5. Solve the following Quadratic Equation:
   $x^2 - 7x + 3 = 0$
   Give your answer correct to two decimal places. [2020]

6. Solve for x the quadratic equation $x^2 - 4x - 8 = 0$
   Give your answer correct to three significant figures. [2019]

7. Solve $x^2 + 7x = 7$ and give your answer correct to two decimal places. **[4]**
   [2018]

8. Find the value of k for which the following equation has equal roots. **[3]**
   $x^2 + 4kx + (k^2 - k + 2) = 0$ [2018]

9. Solve the equation $4x^2 - 5x - 3 = 0$ and give your answer correct to two decimal places. **[4]** [2017]

10. Solve the quadratic equation $x^2 - 3(x + 3) = 0$; Give your answer correct to two significant figures. **[3]** [2016]

11. Find the value of 'K' for which x = 3 is a solution of the quadratic equation, $(K + 2)\ x^2 - Kx + 6 = 0$. Thus find the other root of the equation. [2015]

12. Solve for x using the quadratic formula. Write your answer correct to two significant figures, $(x - 1)^2 - 3x + 4 = 0$. **[3]** [2014]

13. Solve the following equation and calculate the answer correct to two decimal places:

    $x^2 - 5x - 10 = 0$ [3] [2013]

14. Without solving the following quadratic equation, find the value of 'p' for which the given equation has real and equal roots: $x^2 + (p - 3)x + p = 0$ [2013]

15. Without solving the following quadratic equation, find the value of 'm' for which the given equation has real and equal roots.
    $x^2 + 2\ (m - 1)\ x + (m + 5) = 0$ **[3]** [2012]

16. Solve the following equation and give your answer correct to 3 significant figures:
    $5x^2 - 3x - 4 = 0$ **[3]** [2012]

17. Solve the following equation:
    $x - \frac{18}{x} = 6$. Give your answer correct to two significant figures. **[3]** [2011]

18. Without solving the following quadratic equation, find the value of 'p' for which the roots are equal. $px^2 - 4x + 3 = 0$ **[3]** [2010]

19. A man covers a distance of 100 km, travelling with a uniform speed of x km/hr. Had the speed been 5 km/hr more it would have taken 1 hour less. Find x the original speed. [2023]

20. The difference of two natural numbers is 7 and their product is 450. Find the numbers. [2020]

21. The product of two consecutive natural numbers which are multiples of 3 is equal to 810. Find the two numbers. **[3]** [2019]

22. ₹ 7500 were divided equally among a certain number of children. Had there been 20 less children, each would have received ₹ 100 more. Find the original number of children. [2018]

23. Two cars X and Y use 1 litre of diesel to travel x km and (x + 3) km respectively. If both the cars covered a distance of 72 km, then:

i. The number of litres of diesel used by car X is: [1]

(a) $\frac{72}{X-3}$ litres

(b) $\frac{72}{X+3}$ litres

(c) $\frac{72}{X}$ litres

(d) $\frac{12}{X}$ litres

ii. The number of litres of diesel used by car Y is: [1]

(a) $\frac{72}{X-3}$ litres

(b) $\frac{72}{X+3}$ litres

(c) $\frac{72}{X}$ litres

(d) $\frac{12}{X+3}$ litres

iii. If car X used 4 litres of diesel more than car Y in the journey, then: [1]

(a) $\frac{72}{x-3} - \frac{12}{x} = 4$

(b) $\frac{72}{x+3} - \frac{72}{x} = 4$

(c) $\frac{72}{x} - \frac{72}{x+3} = 4$

(d) $\frac{72}{x-3} - \frac{72}{x+3} = 4$

iv. The amount of diesel used by the car X is: [1]

(a) 6 litres
(b) 12 litres
(c) 18 litres
(d) 24 litres [2021 Semester-1]

24. The sum of the ages of Vivek and his younger brother Amit is 47 years. The product of their ages in years is 550. Find their ages. **[4]** [2017]

25. A bus covers a distance of 240 km at a uniform speed. Due to heavy rain its speed gets reduced by 10 km/h and as such it takes two hours longer to cover the total distance. Assuming the uniform speed to be 'x' km/h, form an equation and solve it to evaluate 'x'. **[3]** [2016]

26. Sum of two natural numbers is 8 and the difference of their reciprocal is $\frac{2}{15}$. Find the numbers. **[3]** [2015]

27. A two digit positive number is such that the product of its digits is 6. If 9 is added to the number, the digits interchange their places. Find the number. **[4]** [2014]

28. A shopkeeper purchases a certain number of books for Rs. 960. If the cost per book was 8 less, the number of books that could be purchased for Rs. 960 would be 4 more. Write an equation, taking the original cost of each book to be Rs. x, and solve it to find the original cost of the books.**[4]** [2013]

29. A car covers a distance of 400 km at a certain speed. Had the speed been 12 km/h more, the time taken for the journey would have been 1 hour 40 minutes less. Find the original speed of the car. **[4]** [2012]

30. Rs.480 is divided equally among 'x' children. If the number of children was 20 more, then each would have got Rs. 12 less. Find 'x'. **[3]** [2011]

31. A positive number is divided into two parts such that the sum of the squares of the two parts is 20. The square of the larger part is 8 times the smaller part. Taking x as the smaller part of the two parts, find the number. **[4]** [2010]
