

MM 25

Time 1 hour

**1 Mark Each**

1. State fundamental theorem of Arithmetic.
2. Give example of polynomials  $p(x)$ ,  $g(x)$  and  $r(x)$  which satisfy the division algorithm and  $\text{degree } p(x) = \text{degree } q(x)$ .
3. Define linear equation in 2 variables.
4. Common difference in an A.P. may be \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_
5. Abscissa is \_\_\_\_\_

**2 Marks Each**

6. Find  $k$  for real roots  $2x^2 + kx + 3 = 0$ .
7. Prove that  $2x^4 + 4x^3 + 3x^2 - 2x - 2$  has no integral zero

**3 Marks Each**

8. Prove  $\sqrt{3}$  is an irrational number.
9. Quadrilateral (if any) formed by  $(-1, -2)$ ,  $(1, 0)$ ,  $(-1, 2)$ ,  $(-3, 0)$  is \_\_\_\_\_
10. Factorise by factorisation  $\frac{a}{b}x^2 + \frac{b}{a} = 1 - 2x$

**6 Marks Each**

11. The students of a class are made to stand in rows. If 3 students are extra in a row, There would be 1 row less. If 3 students are less in a row, there would be 2 row more Find the number of students in the class using graphical method.
12. A plane left 30 minutes late than its scheduled time and in order to reach the destination 1500 km away in time, it had to increase the speed by 250 km/h from the usual speed. Find its usual speed.