

**Time: 1 Hours**

**M. Marks: 24**

1. Divide  $12x^3 - 8x^2 - 6x + 10$  by  $(3x - 2)$ . Also, write the quotient and the remainder.
2. Factorize each of the following quadratic polynomials.
  - (i)  $x^2 - 23x + 132$
3. Factorize:
  - (i)  $x^{16} - y^{16} + x^8 + y^8$
4. Factorize each of the following algebraic expressions:
  - (i)  $a^{12}x^4 - a^4x^{12}$
5. Find the square root of the following numbers in decimal form:
  - (i) 0.00002025
6. A gardener has 1000 plants, he wants to plant these in such a way that the number of rows and the number of column remain same. Find the minimum number of plants he need more for this.
7. Divide 34 in to two parts in such a way that  $\left(\frac{4}{7}\right)^{\text{th}}$  of one part is equal to  $\left(\frac{2}{5}\right)^{\text{th}}$  of the other.
8. A steamer goes downstream and covers the distance between two ports in 5 hours while it covers the same distance upstream in 6 hours. If the speed of the stream is 1 km/hr, find the speed of the steamer in still water.