30 MARKS

1. Represent $\sqrt{11}$ on number line and justify. [2]

2. Represent $\sqrt{7.3}$ on number line [2]

3. Express $2.0\overline{35}$ in the form of $\frac{p}{q}$. [2]

4. Find a rational number and an irrational number between $\frac{5}{7}$ and $\frac{9}{11}$. [2]

5. Simplify $\sqrt[6]{12} \div \sqrt{3} \cdot \sqrt[3]{2}$ [2]

6. Rationalise the denominator $\frac{y^2}{\sqrt{x^2+y^2}+x}$ [3]

7. Rationalise the denominator $\frac{15}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$ [4]

8. Find the value of a and b

$$\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = a + \frac{7}{11}\sqrt{5}b$$ [4]

9. If $x = 9+4\sqrt{5}$, find $\sqrt{x} - \frac{1}{\sqrt{x}}$ [2]

10. If $x = \frac{1}{2-\sqrt{3}}$, find $x^3 - 2x^2 - 7x + 5$ [3]

11. If $a = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $b = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$. Find $a^2 + b^2 - 5ab$. [4]