



# JAYAM TUITION CENTRE.

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STD: 12  
SUB: MATHS  
MARKS: 25

## EXERCISE TEST - 7 (EX:3-1,2)

### 2 Mark Questions

5 X 2 = 10

- If  $\alpha$  and  $\beta$  are the roots of the quadratic equation  $17x^2 + 43x - 73 = 0$ , construct a quadratic equation whose roots are  $\alpha + 2$  and  $\beta + 2$ .
- If  $\alpha, \beta, \gamma$  are the roots of the equation  $x^3 + px^2 + qx + r = 0$ , find the value of  $\sum \frac{1}{\beta\gamma}$  in terms of the coefficients
- If  $p$  is real, discuss the nature of the roots of the equation  $4x^2 + 4px + p + 2 = 0$ , in terms of  $p$ .
- Find a polynomial equation of minimum degree with rational coefficients, having  $2 - \sqrt{3}$  as a root.
- If the equations  $x^2 + px + q = 0$  and  $x^2 + p'x + q' = 0$  have a common root, show that it must be equal to  $\frac{pq' - p'q}{q - q'}$  or  $\frac{q - q'}{p' - p}$ .

### 5 Mark Questions

3 X 5 = 15

- If  $\alpha, \beta, \gamma$  and  $\delta$  are the roots of the polynomial equation  $2x^4 + 5x^3 - 7x^2 + 8 = 0$ , find a quadratic equation with integer coefficients whose roots are  $\alpha + \beta + \gamma + \delta$  and  $\alpha\beta\gamma\delta$ .
- If  $p$  and  $q$  are the roots of the equation  $lx^2 + nx + n = 0$ , show that

$$\sqrt{\frac{p}{q}} + \sqrt{\frac{q}{p}} + \sqrt{\frac{n}{l}} = 0.$$

- Form a polynomial equation with integer coefficients with  $\sqrt{\frac{\sqrt{2}}{\sqrt{3}}}$  as a root.