

$$③ \text{ let } p(x) = 3x^4 + 6x^3 - 2x^2 - 10x - 5$$

given zeros  $\frac{\sqrt{5}}{3}, -\frac{\sqrt{5}}{3}$  NCERT Solutions by Dev Anoop (Bathinda)

polynomial with given zeros [g(x)]

$$= (x - \alpha)(x - \beta) \cdot k$$

$$= \left(x - \frac{\sqrt{5}}{3}\right)\left(x + \frac{\sqrt{5}}{3}\right) \cdot k$$

$$= \left(x^2 - \frac{5}{3}\right) \cdot 3 \quad (k=3)$$

$$= \frac{3x^2 - 5}{3} \cdot 3$$

$$\begin{array}{r} x^2 + 2x + 1 \\ 3x^2 - 5 \overline{) 3x^4 + 6x^3 - 2x^2 - 10x - 5} \\ \underline{3x^4} \phantom{- 10x} - 5x^2 \\ \phantom{3x^4} \phantom{- 10x} \phantom{- 5} + \\ \hline 6x^3 + 3x^2 - 10x - 5 \\ \underline{6x^3} \phantom{- 10x} - 10x \\ \phantom{6x^3} \phantom{- 10x} \phantom{- 5} + \\ \hline 3x^2 - 5 \\ \underline{3x^2 - 5} \\ \hline 0 \end{array}$$

$$\therefore p(x) = g(x) [x^2 + 2x + 1]$$

$$= (x^2 + x + x + 1) [g(x)]$$

$$= x(x+1) + 1(x+1) [g(x)]$$

$$= (x+1)(x+1) [g(x)]$$

remain. two zeros are  $-1, -1$  [ $\because x+1=0$   
 $\Rightarrow x=-1$ ]