

$$\text{No. of element of order 6 is } = \phi$$

$$\text{L.C.M.}(3, 2)$$

$$= \text{L.C.M.}(\text{No. of element of order 3, No. of element of order 2 in } S_3)$$

$$= \text{L.C.M.}(\phi 3, \phi 2)$$

$$= \text{L.C.M.}(2, 1)$$

$$\text{No. of element of order 6} = 2 = \alpha$$

$$\text{No. of cyclic subgroup of order 6} =$$

$$\frac{\text{No. of element of order 6}}{\phi(6)}$$

$$= \frac{2}{\phi(6)} = \frac{2}{\phi(2 \cdot 3)} = \frac{2}{\phi(2) \cdot \phi(3)}$$

$$= \frac{2}{2} = 1$$

$$x^2 - 3x + 2 = 0$$

$$(x-1)(x-2) = 0$$

$$\downarrow \quad \downarrow$$

$$\alpha \quad \beta$$