2. The sides of a triangle are in the ratio $1 : \sqrt{3} : 2$, then the angles of the triangle are in the ratio *(2004S)*

(a) $1 : 3 : 5$ (b) $2 : 3 : 4$ (c) $3 : 2 : 1$ (d) $1 : 2 : 3$

Solution: -

2. **(d)** Sides are in the Ratio $1 : \sqrt{3} : 2$

Let $a = k$, $b = \sqrt{3}\,k$ and $c = 2k$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = \frac{\sqrt{3}}{2} \Rightarrow A = \frac{\pi}{6}$$

$$\cos B = \frac{c^2 + a^2 - b^2}{2ac} = \frac{1}{2} \Rightarrow B = \frac{\pi}{3}$$

$$\Rightarrow \quad C = \pi - (A + B) = \frac{\pi}{2} \Rightarrow A : B : C = 1 : 2 : 3$$