

$$(13) \sin \theta - \cos \theta = 1$$

$$\Rightarrow \sin \theta = \cos \theta$$

$$\Rightarrow \frac{\sin \theta}{\cos \theta} = 1$$

$$\Rightarrow \tan \theta = 1$$

$$\Rightarrow \theta = 45^\circ$$

$$\sin^4 \theta + \cos^4 \theta$$

$$= \sin^4 45^\circ + \cos^4 45^\circ$$

$$= \left(\frac{1}{\sqrt{2}}\right)^4 + \left(\frac{1}{\sqrt{2}}\right)^4$$

$$= \frac{1}{4} + \frac{1}{4}$$

$$= \frac{2}{4}$$

$$= \frac{1}{2} \quad (C)$$

NCERT Exemplar Solutions by Dev Anoop (Bathinda)

$$(14) \sin(45^\circ + \theta) - \cos(45^\circ - \theta)$$

$$= \sin(45^\circ + \theta) - \sin(90^\circ - 45^\circ + \theta)$$

$$= \sin(45^\circ + \theta) - \sin(45^\circ + \theta)$$

$$= 0 \quad (B)$$