

EXERCISE – II**MULTIPLE CORRECT (OBJECTIVE QUESTIONS)**

1. $\sin x$, $\sin 2x$, $\sin 3x$ are in A.P. if

- (A) $x = n\pi/2$, $n \in \mathbb{I}$ (B) $x = n\pi$, $n \in \mathbb{I}$
 (C) $x = 2n\pi$, $n \in \mathbb{I}$ (D) $x = (2n+1)\pi$, $n \in \mathbb{I}$

2. $\sin x - \cos^2 x - 1$ assumes the least value for the set of values of x given by

- (A) $x = n\pi + (-1)^{n+1}(\pi/6)$, $n \in \mathbb{I}$
 (B) $x = n\pi + (-1)^n(\pi/6)$, $n \in \mathbb{I}$
 (C) $x = n\pi + (-1)^n(\pi/3)$, $n \in \mathbb{I}$
 (D) $x = n\pi - (-1)^n(\pi/6)$, $n \in \mathbb{I}$

3. $\sin x + \sin 2x + \sin 3x = 0$ if

- (A) $\sin x = 1/2$ (B) $\sin 2x = 0$
 (C) $\sin 3x = \sqrt{3}/2$ (D) $\cos x = -1/2$

4. $\cos 4x \cos 8x - \cos 5x \cos 9x = 0$ if

- (A) $\cos 12x = \cos 14x$ (B) $\sin 13x = 0$
 (C) $\sin x = 0$ (D) $\cos x = 0$

5. The general solution of the equation

$\cos x \cdot \cos 6x = -1$, is

- (A) $x = (2n+1)\pi$, $n \in \mathbb{I}$ (B) $x = 2n\pi$, $n \in \mathbb{I}$
 (C) $x = (2n-1)\pi$, $n \in \mathbb{I}$ (D) None of these

6. If $\sin(x-y) = \cos(x+y) = 1/2$ then the values of x & y lying between 0 and π are given by

- (A) $x = \pi/4$, $y = 3\pi/4$ (B) $x = \pi/4$, $y = \pi/12$
 (C) $x = 5\pi/4$, $y = 5\pi/12$ (D) $x = 11\pi/12$, $y = 3\pi/4$

7. The equation

$$2 \sin \frac{x}{2} \cdot \cos^2 x + \sin^2 x = 2 \sin \frac{x}{2} \cdot \sin^2 x + \cos^2 x$$

has a root for which

- (A) $\sin 2x = 1$ (B) $\sin 2x = -1$
 (C) $\cos x = \frac{1}{2}$ (D) $\cos 2x = -\frac{1}{2}$

8. $\cos 15x = \sin 5x$ if

- (A) $x = -\frac{\pi}{20} + \frac{n\pi}{5}$, $n \in \mathbb{I}$ (B) $x = \frac{\pi}{40} + \frac{n\pi}{10}$, $n \in \mathbb{I}$
 (C) $x = \frac{3\pi}{20} + \frac{n\pi}{5}$, $n \in \mathbb{I}$ (D) $x = -\frac{3\pi}{40} + \frac{n\pi}{10}$, $n \in \mathbb{I}$

9. $5 \sin^2 x + \sqrt{3} \sin x \cos x + 6 \cos^2 x = 5$ if

- (A) $\tan x = -1/\sqrt{3}$ (B) $\sin x = 0$
 (C) $x = n\pi + \pi/2$, $n \in \mathbb{I}$ (D) $x = n\pi + \pi/6$, $n \in \mathbb{I}$

10. $\sin^2 x + 2 \sin x \cos x - 3 \cos^2 x = 0$ if

- (A) $\tan x = 3$ (B) $\tan x = -1$
 (C) $x = n\pi + \pi/4$, $n \in \mathbb{I}$ (D) $x = n\pi + \tan^{-1}(-3)$, $n \in \mathbb{I}$

11. $\sin^2 x - \cos 2x = 2 - \sin 2x$ if

- (A) $x = n\pi/2$, $n \in \mathbb{I}$ (B) $\tan x = 3/2$
 (C) $x = (2n+1)\pi/2$, $n \in \mathbb{I}$
 (D) $x = n\pi + (-1)^n \sin^{-1}(2/3)$, $n \in \mathbb{I}$