

# Inverse Trigonometric Functions

## Part - 3

### ASSERTION-REASON QUESTIONS

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false and R is also false.

1. **Assertion (A) :** Domain of  $f(x) = \sin^{-1} x + \cos x$  is  $[-1, 1]$ .

**Reason (R) :** Domain of a function is the set of all possible values for which function will be defined.

2. **Assertion (A) :** Function  $f: \mathbb{R} \rightarrow \mathbb{R}$  given by  $f(x) = \sin x$  is not a bijection.

**Reason (R) :** A function  $f: A \rightarrow B$  is said to be bijection if it is one-one and onto.

3. **Assertion (A) :** Principal value of  $\tan^{-1}(-\sqrt{3})$  is  $-\frac{\pi}{3}$ .

**Reason (R) :**  $\tan^{-1}: \mathbb{R} \rightarrow \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$  so for any  $x \in \mathbb{R}$ ,  $\tan^{-1}(x)$  represent an angle in  $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ .

4. **Assertion (A) :**  $\sin^{-1}(-x) = -\sin^{-1} x$ ;  $x \in [-1, 1]$

**Reason (R) :**  $\sin^{-1}: [-1, 1] \rightarrow \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$  is a bijection map.

### Answers

1. (a)                      2. (a)                      3. (a)                      4. (b)

