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 $f : \mathbb{R} \to \mathbb{R}$ given by $f(x) = \sin x$ is not a bijection.
   Reason (R) : A function $f : A \to B$ 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) : $\tan^{-1} : \mathbb{R} \to \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ 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) : $\sin^{-1} : [-1, 1] \to \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ is a bijection map.

Answers

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