

# Mathematics

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## (Chapter 2)(Inverse Trigonometric Functions)

(Class XII)

### (Exemplar Problems)

#### Objective Type Questions

Choose the correct answers from the given four options in the following (MCQ):

#### Question 25:

The domain of the function defined by  $f(x) = \sin^{-1}\sqrt{x-1}$  is

(A) [1, 2]

(B) [-1, 1]

(C) [0, 1]

(D) none of these

#### Answer 25:

(A) [1, 2]

#### Solution:

Given that:  $f(x) = \sin^{-1}\sqrt{x-1}$

Now, we have  $f(x) = \sin^{-1}\sqrt{x-1}$

$$\Rightarrow 0 \leq \sqrt{x-1} \leq 1$$

$$[\because \sqrt{x-1} \geq 0 \text{ and } -1 \leq \sqrt{x-1} \leq 1]$$

$$\Rightarrow 0 \leq x-1 \leq 1$$

$$\Rightarrow 1 \leq x \leq 2$$

$$\Rightarrow x \in [1, 2]$$

Hence, the option (A) is correct.

