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

Sol. (a) is the correct answer.

(a) We know that $\sin^{-1}x$ is defined for $x \in [-1, 1]$

∴ $f(x) = \sin^{-1}\sqrt{x-1}$ is defined if

⇒ $0 \le \sqrt{x-1} \le 1$

⇒ $0 \le x-1 \le 1$ $[\because \sqrt{x-1} \ge 0 \text{ and } -1 \le \sqrt{x-1} \le 1]$

⇒ $1 \le x \le 2$

∴ $x \in [1, 2]$