RELATIONS AND FUNCTIONS

CLASSIFICATION OF FUNCTION

EXERCISE

Q.1 Which one of the following qualifies as a function?

(A){(2,1), (2,2), (2,3), (2,4)}

(B){(1,4), (2,5), (1,6) , (3,9)}

(C){(1,2), (3,3), (2,3), (1,4)}

(D){ (1,2), (2,2), (3,2), (4,2)}

Q.2 If f (x) $= \frac{x}{x-1} = \frac{1}{y}$, then f (y) equals

(A)x (B) x – 1 (C) x + 1 (D) 1 – x

Q.3 Determine the domain of f(x) $= \frac{1}{x^3 - x}$ is -

Q.4 Identify the range of f (x) $= \cos \frac{\pi[x]}{2}$ is -

Q.5 If f : $R^+ \to R^+$, $f(x) = x^2 + 2$ and g : $R^+ \to R^+$, $g(x) = \sqrt{x+1}$ then (f + g) (x) equals -

Q.6 The function $f(x) = x^{-2} + x^{-3}$ is -

(A) a rational function (B) an irrational function

(C) an inverse function (D) None of these

Q.7 The period of | sin 2x | is-

(A) $\frac{\pi}{4}$ (B)$\frac{\pi}{2}$ (C) π (D) 2π

Q.8 If $f(x) = \frac{x-3}{x+1}$, then f [f {f (x)}] equals -

(A)x (B) $\frac{1}{X}$ (C) –x (D) $\frac{-1}{X}$

Q.9 If $f(x) = 2|x - 2| - 3|x - 3|$, then the value of $f(x)$ when $2 < x < 3$ is -

(A) $5 - x$ (B) $x - 5$

(C) $5x - 13$ (D) None of these

Q.10 Which functions from R to R are injective?

(A) $f(x) = |x|$ (B) $f(x) = \cos x$

(C) $f(x) = e^x$ (D) $f(x) = x^2$

ANSWER KEY

1. (D) $\{(1,2), (2,2), (3,2), (4,2)\}$

2. (D) $1 - x$

3. (A) $R - \{-1,0,1\}$

4. (C) $\{-1,0,1\}$

5. (D) $x^2 + 2 + \sqrt{(x+1)}$

6. (A) a rational function

7. (B) $\frac{\pi}{2}$

8. (A) x

9. (C) $5x - 13$

10 (C) $f(x) = e^x$