DPP -1 FUNCTIONS

Q.1 Which of the following relation is a function ?
(A) {(1,4), (2,6), (1,5), (3,9)} (B) {(3,3), (2,1), (1,2), (2,3)}
(C) {(1,2), (2,2,), (3,2), (4,2)} (D) {(3,1), (3,2), (3,3), (3,4)}

.2 Domain of the function $f(x) = \dfrac{1}{\sqrt{x+2}}$ is-

(A) R (B) (–2, ∞) (C) [2, ∞] (D) [0, ∞]

Q.3 The domain where function $f(x) = 2x^2 - 1$ and $g(x) = 1 - 3x$ are equal, is-
(A) {1/2} (B) {2} (C) {1/2,2} (D) {1/2,-2}

Q.4 The domain of the function-
$f(x) = \sqrt{x-1} + \sqrt{6-x}$ is-
(A) (1,6) (B) [1,6] (C) [1, ∞) (D) (–∞,6]

Q.5 The domain of the function $f(x) = \sqrt{(2 - 2x - x^2)}$ is -

(A) $-\sqrt{3} \le x \le \sqrt{3}$ (B) $-1 - \sqrt{3} \le x \le -1 + \sqrt{3}$

(C) $-2 \le x \le 2$ (D) $-2 + \sqrt{3} \le x \le -2 - \sqrt{3}$

Q.6 Domain and range of $f(x) = \dfrac{|x-3|}{x-3}$ are respectively-
(A) R, [–1,1] (B) R– {3}, {1,–1} (C) R⁺, R (D) None of these

Q.7 The domain of the function $f(x) = \sin 1/x$ is -
(A) R (B) R⁺

(C) R_0 (D) R⁻

Q.8 Range of the function $f(x) = 9 - 7 \sin x$ is-
(A) (2,16) (B) [2,16] (C) [–1,1] (D) (2,16]
.9 If $f(x) = \log x$, then $f(x/y)$ equals-
(A) f(x) + f(y) (B) f(x) – f(y) (C) f(x) / f(y) (D) f(x) . f(y)

Q.10 If $f(x) = \dfrac{2x}{1-x^2}$, then f (tan θ) equals-

(A) cot 2θ (B) tan 2 θ (C) sec 2θ (D) cos 2 θ

Q.11 If the domain of the function $f(x) = \dfrac{|x|}{x}$ be [3,7] then its range is-

(A) [−1,1] (B) {−1,1}
(C) {1} (D) {−1}

Q.12 If $f(x) = \log x$, then correct statement is-
(A) $f(x + y) = f(x) + f(y)$ (B) $f(x + y) = f(x) \cdot f(y)$ (C) $f(xy) = f(x) + f(y)$ (D) $f(xy) = f(x) \cdot f(y)$

Q.13 If $f(x) = \dfrac{x}{x+1}$, then $\dfrac{f(a/b)}{f(b/a)} =$
(A) ab (B) a/b (C) b/a (D) 1

Q.14 If $f(x) = \dfrac{x(x-1)}{2}$, then the value of f (x + 2) is-

(A) f (x) + f(x + 1) (B) $\dfrac{(x+2)}{x}$ f(x + 1) (C) $\dfrac{(x+1)}{2}$ f(x +1) (D) $\dfrac{(x+2)}{2}$ f(x +1)

Q.15 If $f(x) = \cos (\log x)$, then $\dfrac{f(xy) + f(x/y)}{f(x)f(y)}$ equals-
(A) 1 (B) −1 (C) 0 (D) 2

Q.16 If $f(x) = |x| + |x - 1|$, then for $0 < x < 1$, f (x) equals-
(A) 1 (B) −1 (C) 2x + 1 (D) 2x − 1

Q.17 If $f(x) = a^x$, then f(x+ y) equals-
(A) f(x) + f(y) (B) f(x) − f(y) (C) f(x) f(y) (D) f(x) /f(y)

Q.18 The function $f(x) = \dfrac{|x|}{x}$, x > 0 is -
(A) 0 (B) 1 (C) 2 (D) −2

Q.19 If $f : N \to R^+$, $f(x) = \sqrt{x}$, then the value of $\dfrac{f(25)}{f(9) + f(16)}$ is -

(A) 0 (B) 1
(C) 5/7 (D) 9/7

Q.20 If $f(x) = \log_a x$, then f(ax) equals-
(A) f(a) f(x) (B) 1+ f(x)
(C) f(x) (D) a f(x)

.21 If $f(x) = \dfrac{b(x-a)}{(b-a)} + \dfrac{a(x-b)}{(a-b)}$, then $f(a+b) =$

(A) f(a). f(b)   (B) f(a) – f(b)   (C) f(a) /f(b)   (D) f(a) + f(b)

Q.22 The range of the function $f(x) = \dfrac{2+x}{2-x}$, $x \neq 2$ is -   **[AIEEE-2002]**

(A) R   (B) R – {–1}   (C) R – {1}   (D) R – {2}

Answers

1c 2b 3 d 4 b 5 b 6 b 7 b 8 b 9 b 10 b 11c 12 c 13 b 14 b 15 d 16 a 17 c 18 b 19 c 20 b 21 d 22b

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