LOGARITHMS

SELECT THE CORRECT ALTERNATIVE (ONLY ONE CORRECT ANSWER)

1 The value of x, satisfying the inequality $\log_{0.3}(x^2 + 8) > \log_{0.3} 9x$, lies in
(A) $1 < x < 8$ (B) $8 < x < 13$
(C) $x > 8$ (D) none these

2. If $a = \log_{1/2}\sqrt{0.125}$ and $b = \log_3\left(\frac{1}{\sqrt{24}-\sqrt{17}}\right)$ then
(A) $a > 0,\ b > 0$ (B) $a < 0,\ b < 0$
(C) $a > 0,\ b < 0$ (D) $a < 0,\ b > 0$

3. The number $\log_2 7$ is
(A) rational number (B) irrational number
(C) a prime number (D) an integer

4. The value of x, satisfying $3^{4\log_9(x+1)} = 2^{2\log_2 x} + 3$, is
(A) x = 0 (B) x = 1
(C) x = 2 (D) x = 3

5. The value of $\frac{1}{\log_3 \pi} + \frac{1}{\log_4 \pi}$ is
(A) 2 (B) less than 2
(C) more than 2 (D) none of these

6. The value of $|\log_b a + \log_a b|$ where a and b are positive numbers is always
(A) ≥ 2 (B) ≤ 2
(C) = 2 (D) none of these

7. If $a > 0,\ c > 0,\ b = \sqrt{ac}$, $a \neq 1,\ c \neq 1,\ ac \neq 1$ and $n > 0$, then the value of $\frac{\log_a n - \log_b n}{\log_b n - \log_c n}$ is equal to
(A) $\frac{\log_a n}{\log_c n}$ (B) $\frac{\log_n a}{\log_n c}$
(C) $\log_c a$ (D) none of these

8. The value of $7\log\frac{16}{15} + 5\log\frac{25}{24} + 3\log\frac{81}{80}$ is
(A) log2 (B) log 3
(C) 0 (D) none of these

9. Values of x satisfying the equation
$\log_{(2x+3)}\left(6x^2 + 23x + 21\right) = 4 - \log_{(3x+7)}\left(4x^2 + 12x + 9\right)$ are
(A) $-1, -\frac{1}{3}$ (B) $-2, -\frac{1}{4}$
(C) $-1, -\frac{1}{4}$ (D) $-2, -\frac{1}{3}$

10. Value of x, satisfying the equation
$\frac{6}{5}a^{\log_a x.\ \log_{10} a.\log_a 5} - 3^{\log_{10}\left(\frac{x}{10}\right)} = 9^{\log_{100} x+\log_4 2}$ is

(A) 50 (B) 100
(C) 150 (D) 200

11. $\frac{1}{\log_2 n}+\frac{1}{\log_3 n}+\frac{1}{\log_4 n}+.....+\frac{1}{\log_{43} n}$ is equal to

(A) $\frac{\log n}{\log(43!)}$ (B) $\frac{1}{\log_{43!} n}$
(C) $\log_{43!} n$ (D) none of these

12. If $\log_{0.3}(x-1) < \log_{0.09}(x-1)$, then x will lie in the interval
(A) $(2, \infty)$ (B) (1, 2)
(C) $(-2, -1)$ (D) none of these

13. The value of $\frac{\log_a(\log_b a)}{\log_b(\log_a b)}$ is

(A) $\log_a b$ (B) $\log_b a$
(C) $-\log_a b$ (D) none of these

14. The values of x, satisfying the equation for $\forall$ a > 0
$2\log_x a+\log_{ax} a+3\log_{a^2 x} a=0$ are

(A) a^{-2}, a^{-1} (B) $a^{-1/2}, a^{-1}$
(C) a^{-3}, a^{-1} (D) $a^{-4/3}, a^{-1/2}$

15. The value of x, satisfying the equation
$\log_{10}\left(98+\sqrt{x^3-x^2-12x+36}\right)=2$ is

(A) -3 (B) -4
(C) -5 (D) -6

16. If $4^{\log_9 3}+9^{\log_2 4}=10^{\log_x 83}$, then x is equal to

(A) 2 (B) 10
(C) 9 (D) none of these

17. If x > 1, y > 1, z > 1 are in G.P, then $\frac{1}{1+\ln x}, \frac{1}{1+\ln y}, \frac{1}{1+\ln z}$ are in

(A) A.P (B) G.P
(C) H.P (D) none of these

18. $\log_3\left(\log_2\left(\log_{\sqrt{3}} 81\right)\right)$ is equal to

(A) 2 (B) 1
(C) 3 (D) none of these

19. For $\frac{\ln x}{b-c} = \frac{\ln y}{c-a} = \frac{\ln z}{a-b}$, xyz is equal to

(A) 1 (B) abc

(C) 0 (D) none of these

20. The number of solution of $\log_4 (x - 1) = \log_2 (x - 3)$ is

(A) 3 (B) 1

(C) 2 (D) 0

Answers

1.	**A**	2.	**A**	3.	**B**
4.	**B**	5.	**C**	6.	**A**
7.	**A**	8.	**A**	9.	**B**
10.	**B**	11.	**B**	12.	**A**
13.	**C**	14.	**D**	15.	**B**
16.	**B**	17.	**C**	18.	**B**
19.	**A**	20.	**B**		