LOGARITHMIC MOCK 1

1. If $\log_7 2 = m$, then $\log_{49} 28$ is equal to

(A) $2(1+2m)$ (B) $\frac{1+2m}{2}$

(C) $\frac{2}{1+2m}$ (D) $1+m$

2. If $\log_e\left(\frac{a+b}{2}\right) = \frac{1}{2}(\log_e a + \log_e b)$, then relation between a and b will be

(A) $a = b$ (B) $a = \frac{b}{2}$

(C) $2a = b$ (D) $a = \frac{b}{3}$

3. Which is the correct order for a given number α in increasing order

(A) $\log_2 \alpha, \log_3 \alpha, \log_e \alpha, \log_{10} \alpha$

(B) $\log_{10} \alpha, \log_3 \alpha, \log_e \alpha, \log_2 \alpha$

(C) $\log_{10} \alpha, \log_e \alpha, \log_2 \alpha, \log_3 \alpha$

(D) $\log_3 \alpha, \log_e \alpha, \log_2 \alpha, \log_{10} \alpha$

4. If $\log_k x . \log_5 k = \log_x 5, k \neq 1, k > 0$, then x is equal to

(A) k (B) $\frac{2}{5}$ (C) 5 (D) $\frac{4}{5}$

5. If $\log_5 a . \log_a x = 2$, then x is equal to

(A) 125 (B) a^2

(C) 25 (D) None of these

6. If $a^2 + 4b^2 = 12ab$, then $\log(a+2b)$ is

(A) $\frac{1}{2}[\log a + \log b - \log 2]$

(B) $\log\frac{a}{2} + \log\frac{b}{2} + \log 2$

(C) $\frac{1}{2}[\log a + \log b + 4\log 2]$

(D) $\frac{1}{2}[\log a - \log b + 4\log 2]$

7. If $A = \log_2 \log_2 \log_4 256 + 2\log_{\sqrt{2}} 2$, then A is equal to

(A) 2 (B) 3 (C) 5 (D) 7

8. If $\log_{10} x = y$, then $\log_{1000} x^2$ is equal to

(A) y^2 (B) $2y$ (C) $\frac{3y}{2}$ (D) $\frac{2y}{3}$

9. If $x = \log_a(bc), y = \log_b(ca), z = \log_c(ab)$, then which of the following is equal to 1

(A) $x + y + z$

(B) $(1+x)^{-1} + (1+y)^{-1} + (1+z)^{-1}$

(C) xyz

(D) None of these

10. If $a = \log_{24} 12, b = \log_{36} 24$ and $c = \log_{48} 36$, then $1+abc$ is equal to

(A) $2ab$ (B) $2ac$ (C) $2bc$ (D) 0

11. If $a^x = b, b^y = c, c^z = a$, then value of xyz is

(A) 0 (B) 1 (C) 2 (D) 3

12. If $\log_{10} 2 = 0.30103, \log_{10} 3 = 0.47712$, the number of digits in $3^{12} \times 2^8$ is

(A) 7 (B) 8 (C) 9 (D) 10

13. If $\frac{\log x}{b-c} = \frac{\log y}{c-a} = \frac{\log z}{a-b}$, then which of the following is not true -

(A) $xyz = 2$ (B) $x^a y^b z^c = 1$

(C) $x^{b+c} y^{c+a} z^{a+b} = 1$ (D) $xyz = x^a y^b z^c$

14. The number of real values of the parameter k for which $(\log_{16} x)^2 - \log_{16} x + \log_{16} k = 0$ with real coefficients will have exactly one solution is-

(A) 2 (B) 1

(C) 4 (D) None of these

15. If $x = \log_5(1000)$ and $y = \log_7(2058)$ then

(A) $x > y$ (B) $x < y$

(C) $x = y$ (D) None of these

16. If $\log_3[\log_3[\log_3 x]] = \log_3 3$, then what is the value of x ?

(A) 3 (B) 27 (C) 3^9 (D) 3^{27}

17. What is $\log\left(a+\sqrt{a^2+1}\right)+\log\left(\frac{1}{a+\sqrt{a^2+1}}\right)$ equal to ?

(A) 1 (B) 0 (C) 2 (D) $\frac{1}{2}$

18. What is the value of

$\log_{10}\left(\frac{9}{8}\right)-\log_{10}\left(\frac{27}{32}\right)+\log_{10}\left(\frac{3}{4}\right)$?

(A) 3 (B) 2 (C) 1 (D) 0

19. If $(\log_3 x)(\log_x 2x)(\log_{2x} y) = \log_x x^2$, then what is y equal to ?

(A) 4.5 (B) 9 (C) 18 (D) 27

20. If $\log_{10} 2$, $\log_{10}(2^x - 1)$ and $\log_{10}(2^x + 3)$ are three consecutive terms of an A.P., then the value of x is

(A) 1 (B) $\log_5 2$ (C) $\log_2 5$ (D) $\log_{10} 5$