Practice Exercise

Level - I

1. Find the value of $\log_5 10 \times \log_{10} 15 \times \log_{15} 20 \times \log_{20} 25$.
(a) 5/2 (b) 5
(c) 2 (d) $\log\left(\frac{5}{2}\right)$

2. If $\log_3 a = 4$, find value of a.
(a) 27 (b) 3
(c) 9 (d) 81

3. Find the value of $\log\frac{9}{8} - \log\frac{27}{32} + \log\frac{3}{4}$
(a) 0 (b) 1
(c) 3 (d) log (3/4)

4. Evaluate : $3^{2-\log_3 5}$
(a) $\frac{9}{5}$ (b) 45
(c) 5/9 (d) $9\log_{35}$

5. The value of $\left[\frac{1}{\log_{xy}(xyz)} + \frac{1}{\log_{yz}(xyz)} + \frac{1}{\log_{zx}(xyz)}\right]$ is equal to
(a) 1 (b) 2
(c) 3 (d) 4

6. If $\log_2 [\log_3 (\log_2 x)] = 1$, then x is equal to
(a) 512 (b) 128
(c) 12 (d) 0

7. Find the value of $\log_{27} \frac{1}{81}$
(a) – 4/3 (b) – 3
(c) – 1 (d) – 1/3

8. Find the value of $\frac{8\log_8 8}{2\log_{\sqrt{8}} 8}$
(a) 1 (b) 2
(c) 3 (d) 4

9. $\log_3 (5 + x) + \log_8 8 = 2^2$
(a) 22 (b) 33
(c) 11 (d) 44

10. $\log 216\sqrt{6}$ to the base 6 is equal to
(a) 3 (b) 3/2
(c) 7/2 (d) None of these

11. If $\log_k x \log_5 k = 3$, then find the value of x.
(a) k^5 (b) $5k^3$
(c) 243 (d) 125

12. $\log_a\left(\frac{m}{n}\right)$ is equal to
(a) $\log_a(m-n)$ (b) $\log_a m - \log_a n$
(c) $\frac{(\log_a m)}{n}$ (d) $\log_a m \div \log_a n$

13. If $\log_5[\log_3(\log_2 x)] = 1$ then x is
(a) 2^{234} (b) 243
(c) 2^{243} (d) None of these

14. The value of $\left[3\log\left(\frac{81}{80}\right) + 5\log\left(\frac{25}{24}\right) + 7\log\left(\frac{16}{15}\right)\right]$ is
(a) log 3 (b) log 5
(c) log 7 (d) log 2

15. If $\log_{10} a + \log_{10} b = c$, then the value of a is
(a) bc (b) $\frac{c}{b}$
(c) $\frac{(10)^c}{b}$ (d) $\frac{10b}{c}$

16. If $\log_y x = 8$ and $\log_{10y} 16x = 4$, then find the value of y.
(a) 1 (b) 2
(c) 3 (d) 5

17. log 0.0867 = ?
(a) log 8.67 + 2 (b) log 8.67 – 2
(c) $\frac{\log 867}{1000}$ (d) – 2 log 8.67

18. Find x, if $0.01^x = 2$
(a) log 2/2 (b) 2/log 2
(c) – 2/log2 (d) – log 2/2

19. If $2^x.3^{2x} = 100$, then the value of x is
(log 2 = 0.3010, log 3 = 0.4771)
(a) 2.3 (b) 1.59
(c) 1.8 (d) 1.41

20. If $\log_{10} a = b$, then find the value of 10^{3b} in terms of a.
(a) a^3 (b) $3a$
(a) $a \times 1000$ (d) $a \times 100$

21. If log 3 = 0.4771, find $\log (0.81)^2 \times \log\left(\frac{27}{10}\right)^{\frac{2}{3}} \div \log 9$.
(a) 2.689 (b) – 0.0552
(c) 2.2402 (d) 2.702

22. $\log_{10} 10 + \log_{10} 10^2 + \ldots\ldots + \log_{10} 10^n$

(a) $n^2 + 1$ (b) $n^2 - 1$

(c) $\left(\frac{n^2+n}{3}\right)$ (d) $\frac{n^2+n}{2}$

23. If a, b and c are distinct positive number ($\neq 1$) such that $(\log_b a \log_c a - \log_a a) + (\log_a b \log_c b - \log_b b) + (\log_a c \log_b c - \log_c c) = 0$. What is the value of abc?

(a) 1

(b) 0

(c) -1

(d) None of these

24. What is the value of x in the following expression $\log_{3/4} \log_2 (x^2 + 7) \log_{1/4} (x^2 + 7)^{-1} = -2$?

(a) $+3$ (b) -3

(c) ± 3 (d) None of these

Level - II

1. If $\log_{10} 2 = 0.3010$, then the value of $\log_{10} 80$ is :

(a) 1.9030 (b) 1.6020

(c) 3.9030 (d) 2.9030

2. The value of $\log_{2\sqrt{3}} (1728)$ is

(a) 3 (b) 5

(c) 6 (d) 9

3. If $\log 2 = 0.30103$, then the number of digits in 4^{50} is

(a) 30 (b) 31

(c) 100 (d) 200

4. If $\log_7 \log_5 (\sqrt{x} + 5 + \sqrt{x}) = 0$, find the value of x.

(a) 1 (b) 0

(c) 2 (d) None of these

5. 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}

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

(a) 1 (b) 0

(c) 2 (d) $\frac{1}{2}$

7. $\frac{1}{(\log_a bc)+1} + \frac{1}{(\log_b ac)+1} + \frac{1}{(\log_c ab)+1}$ is equal to

(a) 1 (b) 2

(c) 0 (d) abc

8. If $p = \log_3 5$ and $q = \log_{17} 25$, which one of the following is correct?

(a) $p < q$ (b) $p = q$

(c) $p > q$ (d) can't say

9. If $\log_{10} x = a$, $\log_{10} y = b$ and $\log_{10} z = c$, then antilog $(pa + qb - rc) = ?$

(a) $\frac{pxqy}{rz}$ (b) $px + qy - rz$

(c) $\frac{x^p y^q}{z^r}$ (d) $x^p y^q z^r$

10. If a, b, c are three consecutive integers, then $\log (ac + 1)$ has the value

(a) $\log b$ (b) $(\log b)^2$

(c) $2 \log b$ (d) $\log 2b$

11. Find the value of $\left(7^3\right)^{-2\log_7 8}$

(a) 8^{-7} (b) 6^{-8}

(c) 8^{-6} (d) None of these

12. If $(\log_3 x)^2 + \log_3 x < 2$, then which one of the following is correct ?

(a) $0 < x < \frac{1}{9}$ (b) $\frac{1}{9} < x < 3$

(c) $3 < x < \infty$ (d) $\frac{1}{9} \leq x \leq 3$

13. If $\log_{10} x - \log_{10} \sqrt{x} = 2 \log_x 10$, then a possible value of x is given by

(a) 10 (b) 1/100

(c) 1/1000 (d) None of these

14. What is the value of $\frac{\log_{27} 9 \times \log_{16} 64}{\log_4 \sqrt{2}}$?

(a) $\frac{1}{6}$ (b) $\frac{1}{4}$

(c) 8 (d) 4

15. If $(\log_x x)(\log_3 2x)(\log_{2x} y) = \log_x x^2$, then what is the value of y ?

(a) 9/2 (b) 9

(c) 18 (d) 27

16. 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

17. If $\log_{10} x, \log_{10} y, \log_{10} z$ are in AP then x, y, z are in

(a) AP (b) GP

(c) HP (d) None of these

18. Find the value of $\dfrac{\log\sqrt{27}+\log\sqrt{8}-\log\sqrt{125}}{\log 6-\log 5}$

(a) $\dfrac{2}{3}$ (b) $\dfrac{1}{3}$

(c) $\dfrac{3}{2}$ (d) None of these

19. Find the value of x and y respectively for

$\log_{10}\left(x^2y^3\right)=7$ and $\log_{10}\left(x/y\right)=1$

(a) $x=10, y=100$ (b) $x=100, y=10$

(c) $x=10, y=20$ (d) None of these

20. What is the value of $\log_3 2.\ \log_4 3.\ \log_5 4....\log_{16} 15$?

(a) 1/2 (b) 1/3

(c) 2/3 (d) 1/4

21. If $\log_4 5 = a$ and $\log_5 6 = b$ then what is the value of $\log_3 2$?

(a) $\dfrac{1}{2a+1}$ (b) $\dfrac{1}{2b+1}$

(c) $2ab+1$ (d) $\dfrac{1}{2ab-1}$

22. What is the value of x if

$\log_3 x + \log_9 x + \log_{27} x + \log_{81} x = \dfrac{25}{4}$?

(a) 9 (b) 27

(c) 81 (d) None of these

23. What is the value of $\log_{32} 27 \times \log_{243} 8$?

(a) $\dfrac{\log 9}{\log 4}$ (b) $\dfrac{\log 3}{\log 2}$

(c) $\log 27$ (d) None of these

24. $\log a^n / b^n + \log b^n / c^n + \log c^n / a^n$

(a) 1 (b) n

(c) 0 (d) 2