CHAPTER – 1 - LOGARITHM

PRACTICE QUESTIONS

1. log 6 + log 5 is expressed as
   (a) log 11 (b) log 30
   (c) log 5/6 (d) none of these

2. $\log_2 8$ is equal to
   (a) 2 (b) 8
   (c) 3 (d) none of these

3. log32/4 is equal to
   (a) log 32/log 4 (b) log 32 — log 4
   (c) 2^3 (d) none of these

4. log(1 ×2×3) ise qual to
   (a) log 1 + log 2 + log 3 (b) log 3
   (c) log 2 (d) none of these

5. The value of log 0.0001 to the base 0.1 is
   (a) -4 (b) 4
   (c) 1/4 (d) none of these

6. If 2 log x=4 1og 3,the x is equal to
   (a) 3 (b) 9
   (c) 2 (d) none of these

7. log $\sqrt{2}$ 64 is equal to
   (a) 12 (b) 6
   (c) 1 (d) none of these

8. log $2\sqrt{3}$ 1728 is equal to
   (a) $2\sqrt{3}$ (b) 2
   (c) 6 (d) none of these

9. log (1/81) to the base 9 is equal to
   (a) 2 (b) ½
   (c) -2 (d) none of these

10. log 0.0625 to the base 2 is equal to
    (a) 4 (b) 5
    (c) 1 (d) -4

11. Given log2 = 0.3010 and log3 = 0.4771 the value of log 6 is
    (a) 0.9030 (b) 0.9542
    (c) 0.7781 (d) none of these

12. The value of $\log_2 \log_2 \log_2 16$ is
    (a) 0 (b) 2
    (c) 1 (d) none of these

13. The value of log $0.\bar{3}$ to the base 9 is
(a) -1/2 (b) 1/2
(c) 1 (d) none of these

14. If logx + log y = log (x+y), y can be expressed as
(a) x—1 (b) $\frac{x-1}{x}$
(c) $\frac{x}{x-1}$ (d) none of these

15. The value of $\log_2 [\log_2 \{\log_3 (\log_3 27^3)\}]$ is equal to
(a) 1 (b) 2
(c) 0 (d) none of these

16. If $\log_2 x + \log_4 x + \log_{16} x = 21/4$, these x is equal to
(a) 8 (b) 4
(c) 16 (d) none of these

17. Given that $\log_{10} 2 = x$ and $\log_{10} 3 = y$, the value of $\log_{10} 60$ is expressed as
(a) x-y+1 (b) x+y+1
(c) x—y-1 (d) none of these

18. Given that $\log_{10} 2 = x$, $\log_{10} 3 = y$, then $\log_{10} 1.2$ is expressed in terms of x and y as
(a) x+2y—1 (b) x+y—1
(c) 2x+y—1 (d) none of these

19. Given that log x = m + n and log y = m — n, the value of log $10x/y^2$ is expressed in terms of m and n as
(a) 1—m+3n (b) m—1+3n
(c) m+3n+1 (d) none of these

20. The simplified value of $2 \log_{10} 5 + \log_{10} 8 - \frac{1}{2} \log_{10} 4$ is
(a) ½ (b) 4
(c) 2 (d) none of these

21. $\log [1-\{1-(1-x^2)^{-1}\}^{-1}]^{-1/2}$ can be written as
(a) $\log x^2$ (b) log x
(c) log 1/x (d) none of these

22. The simplified value of $\log \sqrt[4]{729\sqrt[3]{9^{-1}.27^{-4}}}$ is
(a) log3 (b) log 2
(c) log1/x (d) none of these

23. The value of $(\log_b a \times \log_c b \times \log_a c)^3$ is equal to
(a) 3 (b) 0
(c) 1 (d) none of these

24. The logarithm of 64 to the base $2\sqrt{2}$ is
(a) 2 (b) $\sqrt{2}$
(c) 1/2 (d) 4

25. The value of $\log_8 25$ given log 2 = 0.3010 is
(a) 1 (b) 2
(c) 1.5482 (d) none of these

26. Find the logarithmic of 58,564 to the base $11\sqrt{2}$
(a) 3 (b) 4
(c) 2 (d) None of these

27. The base of $\log_6 13$ into the common logarithmic base is
(a) $\frac{\log_6 10}{\log_6 13}$ (b) $\frac{\log_{10} 6}{\log_{10} 13}$
(c) $\frac{\log_{10} 13}{\log_{10} 6}$ (d) None of these.

28. If $10^{-2} = 0.01$, then the value of $\log_{10} 0.01$ is
(a) −2 (b) 2
(c) −1 (d) 1

29. The value of $\frac{1}{\log_a (ab)} + \frac{1}{\log_b (ab)}$ is
(a) 0 (b) 1
(c) −1 (d) None of these.

30. $\log_{\sqrt{2}} 128$ is equal to
(a) 6 (b) 12
(c) 24 (d) 14

31. $\log_3 \log_3 27$ is equal to
(a) 0 (b) -1
(c) 3 (d) 1

32. If $\log_{\sqrt{3}} (x + 1) = 2$ then x is equal to
(a) 1 (b) 3
(c) 2 (d) 0

33. The value of $\log_4 \log_3 81$ is equal to
(a) 1 (b) 0
(c) 3 (d) None of these

34. $\log_{64} 512$ is equal to
(a) 3 (b) 2
(c) 1 (d) 3/2

35. The value of log (1 + 2 + 3 + ... +n) is equal to
(a) log 1+ log 2 + ... + log n (b) log n + log (n+1) − log 2
(c) 0 (d) 1

36. $\log (1^2 + 2^2 + 3^2)$ is equal to
(a) $\log 1^2 + \log 2^2 + \log 3^2$ (b) $\log 2 + \log 7$
(c) $\log 2 - \log 7$ (d) None of these

37. $\log (3 \times 5 \times 7)^2$ is equal to
(a) $2(\log 3 + \log 5 + \log 7)$ (b) $\log (2 \times 3 \times 5 \times 7)$
(c) $2(\log 3 - \log 5 - \log 7)$ (d) None of these

38. The value of $\log \frac{a^2}{bc} + \log \frac{b^2}{ca} + \log \frac{c^2}{ab}$ is equal to
(a) 0 (b) 1
(c) -1 (d) None of these

39. The value of $log_3 \frac{1}{81}$ is
(a) 4 (b) −4
(c) 2 (d) −2

40. The value of $log_{2\sqrt{2}} \frac{1}{256}$
(a) $\frac{16}{3}$ (b) −4
(c) 3 (d) $\frac{-16}{3}$

41. If $log_4 [log_3 (log_2 x)] = 0$; then value of x is
(a) 16 (b) 32
(c) 4 (d) None of these

42. The value of $log_x (0.00001) = -5$, then x is
(a) 10 (b) 10^2
(c) 10^0 (d) None of these

43. The value of $log_a \sqrt[n]{A}$
(a) $\frac{1}{n} log_a A$ (b) $a\, log_{1/n} A$
(c) $a\, log_a \left(\frac{1}{n}\right)$ (d) None of these

44. The value of $\frac{log_{10} 4}{log_{10} 8}$
(a) $\frac{1}{3}$ (b) $\frac{4}{3}$
(c) $\frac{2}{3}$ (d) None of these

45. If $log_{10} 12.45 = 1.0952$ and $log_{10} 3.79 = 0.5786$, Find the value of $log_{10} 124.5 + log_{10} 379$
(a) 5.6738 (b) 4.6738
(c) 6.6738 (d) None of these

46. If $log_2 x + log_8 x + log_{32} x = \frac{23}{15}$ then the value of x is
(a) 8 (b) 5
(c) 2 (d) None of these

47. If $\log \frac{a+b}{2} = \frac{1}{2}(\log a + \log b)$, the value of $a^2 + b^2$ is
(a) 2ab (b) 8ab
(c) 6ab (d) None of these

48. $\log_2 \log_x 625 = \log_{16} \log_{10}$ then x is
(a) 7 (b) 8
(c) 5 (d) None of these

49. If log 2 = 0.301 and log 3 = 0.477, then the value of log 225 is:
(a) 2.352 (b) 3.452
(c) 7.452 (d) None of these

50. If log 2 = 0.3010, find the number of digits in 2^{100}
(a) 36 (b) 31
(c) 38 (d) None of these

51. If $\log_x \sqrt{3} = \frac{1}{6}$ find the value of x
(a) 9 (b) 27
(c) 18 (d) None of these

52. The value of $a^{\log_a x}$ is
(a) x (b) $\log_a x$
(c) x^2 (d) None of these

53. The value of $3^{2-\log_3 6}$ is
(a) 9/5 (b) 3/2
(c) 9/4 (d) None of these

54. The value of the expression: $a^{\log_a b \log_b c \log_c d \log_d t}$
(a) t (b) abcdt
(c) (a+b+c+d+t) (d) None

Feb. 2007

55. If $\log_{10000} X = \frac{-1}{4}$ then X is given by:

(a) $\frac{1}{100}$

(b) $\frac{1}{10}$

(c) $\frac{1}{20}$

(d) None of these

Feb. 2007

56. If log (2a - 3b)=log a - log b then a:

(a) $\frac{3b^2}{2b-1}$

(b) $\frac{3b}{2b-1}$

(c) $\frac{b^2}{2b+1}$

(d) $\frac{3b^2}{2b+1}$

May 2007

57. $\frac{1}{\log_{ab}(abc)} + \frac{1}{\log_{bc}(abc)} + \frac{1}{\log_{ca}(abc)}$ is equal to:

(a) 0 (b) 1
(c) 2 (d) -1

Aug. 2007

58. Number of digits in the numeral for 2^{64}. [Given log2 = 0.3010]

(a) 18 digits (b) 19 digits
(c) 20 digits (d) 21 digits

Aug. 2007

59. The value $\frac{\log_3 8}{\log_9 16 . \log_4 10}$ is :

(a) $3\log_{10}2$ (b) $7\log_{10}3$
(c) $3\log_e 2$ (d) None

Nov. 2007

60. If log x = a+b ; log y = a-b then $\log\left(\frac{10x}{y^2}\right)$

(a) 1-a+3b (b) a-1+3b
(c) a+3b+1 (d) 1-b+3a

61. log144 is equal to :

(a) 2log4+2log2 (b) 4log2+2log3
(c) 3log2+4log3 (d) 3log2-4log3

Feb. 2008

62. If $\log_2 [\log_3 (\log_2 x)] = 1$ then x equals:

(a) 128 (b) 256
(c) 512 (d) None

June 2008

63. If $\log\left(\frac{a+b}{4}\right) = \frac{1}{2}(\log a + \log b)$ then the value of $\frac{a}{b} + \frac{b}{a}$ is:

(a) 12 (b) 14
(c) 16 (d) 8

June 2008

64. log (m + n) = log m + log n, m can be expressed as:

(a) $m = \frac{n}{n-1}$ (b) $m = \frac{n}{n+1}$
(c) $m = \frac{n+1}{n}$ (d) $m = \frac{n+1}{n-1}$

65. $\log_4 (x^2 + x) - \log_4 (x+1) = 2$. Find x .

(a) 16 (b) 0
(c) -1 (d) None of these

June 2009

66. Find the value of $[\log_{10}\sqrt{25} - \log_{10}(2^3) + \log_{10}(4)^2]^x$

(a) x (b) 10
(c) 1 (d) None

June 2009

67. If $\log_a b + \log_a c = 0$ then .

(a) b = c (b) b = -c
(c) b = c = 1 (d) b and c are reciprocals

June 2010

68. The Value of
$2 \log x + 2 \log x^2 + 2 \log x^3 + \text{---------} + 2 \log x^n$ will be: -

(a) $\frac{n(n+1)\log x}{2}$ (b) n (n+1) log x

(c) $n^2 \log x$ (d) None of these

Dec. 2010

69. $\left(\frac{\log_{10} x - 3}{2}\right) + \left(\frac{11 - \log_{10} x}{3}\right) = 2$ Then x =

(a) 10^{-1} (b) 10^2

(c) 10 (d) 10^3

Dec. 2010

70. If n = m! where ('m' is a positive integer $\geq$ 2) then the value of:

$$\frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \frac{1}{\log_4 n} + \ldots\ldots\ldots + \frac{1}{\log_m n}$$

(a) 1 (b) 0

(c) -1 (d) 2

June 2011

71. $\log_2 x + \log_4 x = 6$ then x =

(a) 16 (b) 32

(c) 64 (d) 128

Dec. 2011

72. If $\log_x y = 100$ and $\log_2 x = 10$ then the value of y

(a) 2^{10} (b) 2^{100}

(c) 2^{1000} (d) 2^{10000}

June 2012

73. Which is True if $\frac{1}{ab} + \frac{1}{bc} + \frac{1}{ca} = \frac{1}{abc}$

(a) log (ab+bc+ca) = abc (b) $\log\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right)$ = abc

(c) log (abc) = 0 (d) log (a+b+c) = 0

Dec. 2012

74. If $\log_{10} 5 + \log_{10}(5x + 1) = \log_{10}(x + 5) + 1$, Then x =

(a) 5 (b) 3

(c) 1 (d) None

75. If $(\log_{\sqrt{x}} 2)^2 = \log_x 2$ then x =

(a) 16 (b) 32

(c) 8 (d) 4

76. Find value of $[\log_{\sqrt{x}} \log_{\sqrt{x}} \cdot \log_x \sqrt{x}]^3$ =

(a) 0 (b) -1

(c) 1 (d) 3

77. Find the value of $\text{Log}_4 9 . \text{Log}_3 2$ is

(a) 3 (b) 9

(c) 2 (d) 1

78. $X=1+\log_{p} qr$, $y=1+\log_{q} rp$, $z=1+\log_{r} pq$ then find $\frac{1}{x}+\frac{1}{y}+\frac{1}{z}$

(a) 0 (b) 1
(c) -1 (d) 3

79. The value of $\log_5 3 \times \log_3 4 \times \log_2 5$.

(a) 0 (b) 1
(c) 2 (d) 1/2

80. **If $\log_x y = 100$ and $\log_2 x = 10$ then the value of y**

(a) 2^{10} b) 2^{100}
(c) 2^{1000} d) $2^{10,000}$ **June – 2012**

81. **If $\log_{10}^{5}+\log_{10}^{(5x+1)}=\log_{10}^{(x+5)}+1$ then x =**

(a) 5 **(b) 3**
(c) 1 (d) none of these **Dec. – 12**

82. **Which is true if $\frac{1}{ab}+\frac{1}{bc}+\frac{1}{ca}=\frac{1}{abc}$:**

(a) log (ab + bc+ca) = abc (b) $\log\left(\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right)=abc$

(c) log (abc) = 0 **(d) log (a + b + c) = 0** **Dec. 12**

83. $(\log_{\sqrt{x}} 2)^2 = \log_x 2$ then x =

(a) 16 (b) 32
(c) 8 (d) 4 **June - 13**

84. Find value of $\left[\log_{y^x} \log_{z^y} \log_{x^z}\right]^3 =$

(a) 0 b) −1
(c) 1 d) 3 **Dec.- 13**

85. Find the value of $\text{Log}_4 9 . \text{Log}_3 2 =$

(a) 3 (b) 9
(c) 2 **(d) 1** **Dec. -13, May -18**

86. If $x^2 + y^2 = 7xy$ then $\log\left(\frac{x+y}{3}\right)=$

(a) log x + log y **(b)** $\frac{1}{2}(\log x+\log y)$

(c) $\frac{1}{3}(\log x+\log y)$ (d) $\frac{1}{3}(\log x.\log y)$ **June - 14**

87. If $x = \log_{24} 12$; $y = \log_{36} 24$; $z = \log_{48} 36$ then xyz + 1 = ?

(a) 2xy (b) 2zx
(c) 2yz (d) 2 **June - 14**

88. If $\log x = a+b$; $\log y = a-b$ then $\log\left(\frac{10x}{y^2}\right)$

(a) 1–a + 3b
(b) a–1+3b
(c) a+3b+1
(d) 1–b+3a
Dec. - 14

89. $X=1+\log_p qr$, $y = 1+\log_q rp$, $z = 1+\log_r pq$ then find $\frac{1}{x}+\frac{1}{y}+\frac{1}{z}$

(a) 0
(b) 1
(c) 2
(d) –1
Dec. - 14

90. If $\log x = m + n$, $\log y = m-n$ the $\log\left(\frac{10x}{y^2}\right)$:

(a) 1–m + 3 n
(b) m –1+ 3 n
(c) m +3 n + 1
(d) None of these
June -15

91. $\log_3{}^5 \times \log_5{}^4 \times \log_2{}^3$

(a) 2
(b) 5
(c) –2
(d) None of these
Dec. - 15

92. If $\log_4 (x^2+x)-\log_4(x+1)=2$ then the value of x is :

(a) 2
(b) 3
(c) 16
(d) 8
June -16

93. The value of $\frac{1}{\log_3 60}+\frac{1}{\log_4 60}+\frac{1}{\log_5 60}=$ _____ :

(a) 0
(b) 1
(c) 5
(d) 60
June – 16

94. The integral part of a logarithm is called _____ and the decimal part of a logarithm is called _____.

(a) Mantissa, Characteristic
(b) Characteristic, Mantissa
(c) Whole, Decimal
(d) None of these
June – 16

95. Given log 2 = 0.3010 and log 3 = 0.4771 than the value of log 24:

(a) 1.3081
(b) 1.1038
(c) 1.3801
(d) 1.8301
Dec. -16

96. $\log(1^3+2^3+3^3+\ldots\ldots\ldots\ldots+n^3)$

(a) 2 log n + 2 log (n+1) –2 log 2
(b) log n+2 log(n+1) –2 log 2
(c) 2 log n + log (n + 1) – 2 log 2
(d) None of these
June - 17

97. If $\log_3[\log_4(\log_2^x)]=0$ then X =

(a) 4
(b) 8
(c) 16
(d) 32
Dec. - 17

98. If $\log\left(\frac{x-y}{2}\right)=\frac{1}{2}(\log x+\log y)$ then $x^2+y^2=$ _____

(a) 6 xy
(b) 2 xy
(c) $3x^2y^2$
(d) 32
Dec. – 17

99. The value of the expression :

$a^{\log_a^b \log_b^c \log_c^d \log_d^t}$

(a) t (b) abcdt
(c) (a+b+c+d+t) (d) None **May -18**

100. If $\log_x\left(\sqrt[3]{2}\right) = \frac{1}{15}$ then x =

a) 2 b) 8
c) 16 **d) 32** **June - 18**

101. Find the logarithm of $\frac{1}{64}$ to the base 4 is :

a) 2 b) −2
c) −3 d) 3 **Dec. - 18**

102. If $a = \log_{24} 12; b = \log_{36} 24; c = \log_{48} 36;$ then (1+ abc) −2bc =

a) 0 b) a
c) b d) c Dec. 18

103. $\log_2 \log_2 \log_2 16 = ?$

(a) 0 (b) 3
(c) 1 (d) 2 Dec. 18

104. $\log_{2\sqrt{2}}(512) : \log_{3\sqrt{2}} 324 =$

a) 128 : 81 b) 2 : 3
c) 3 : 2 d) None June 19

105. $\log_5\left(1+\frac{1}{5}\right) + \log_5\left(1+\frac{1}{6}\right) + \ldots\ldots\ldots\ldots + \log_5\left(1+\frac{1}{624}\right) =$

(a) 2 **(b) 3**
(c) 5 (d) 0 June 19

106. $\log_{0.01}(10{,}000) = x$; Find the value of x?

(a) 1 **(b) − 2**
(c) − 4 (d) 2 Nov. 19

107. $\log xy^2 - \log y = \log(x+y)$ Find the value of y in term of x

(a) x−1 (b) $\frac{x}{x+1}$
(c) $\frac{x}{x-1}$ (d) x+1 Nov. 19

108. **log 9 + log 5 is expressed as _____**

(a) log (9/5) (b) log 4
(c) log (5/9) **(d) log 45** Dec. 20

109. **If** $\log_a\left(\sqrt{3}\right) = \frac{1}{6}$ **find the value of 'a'**

(a) 81 (b) 9
(c) 27 (d) 3 Dec. 20

110. If $\log_a (ab) = x$, then $\log_b (ab)$ is –

(a) $1/x$ (b) $\frac{x}{1+x}$

(c) $\frac{x}{x-1}$ (d) None of these **Jan. 21**

111. If $\log_4 x + \log_{16} x + \log_{64} x + \log_{256} x = 25/6$ then the value of x is

(a) 64 (b) 4

(c) 16 (d) 2 **July. 21**

112. If $\log_{10} 3 = x$ and $\log_{10} 4 = y$, then the value of $\log_{10} 120$ can be expressed as

(a) x - y + 1 (b) x + y + 1

(c) x + y - 1 (d) 2x + y - 1

Dec. 2021

113. Find the value of $\log (x^6)$ if $\log(x) + 2\log(x^2) + 3\log(x^3) = 14$.

(a) 3 (b) 4

(c) 5 (d) 6

Dec. 2021

ANSWER SHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
(B)	(C)	(B)	(A)	(B)	(B)	(A)	(C)	(C)	(D)
11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
(C)	(C)	(A)	(C)	(C)	(A)	(B)	(C)	(A)	(C)
21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
(B)	(A)	(C)	(D)	(C)	(B)	(C)	(A)	(B)	(D)
31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
(D)	(C)	(A)	(D)	(B)	(B)	(A)	(A)	(B)	(D)
41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
(D)	(A)	(A)	(C)	(B)	(C)	(A)	(C)	(A)	(B)
51.	52.	53.	54.	55.	56.	57.	58.	59.	60.
(B)	(A)	(B)	(A)	(B)	(A)	(C)	(C)	(A)	(A)
61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
(B)	(C)	(B)	(A)	(A)	(C)	(D)	(B)	(A)	(A)
71.	72.	73.	74.	75.	76.	77.	78.	79.	80.
(A)	(C)	(D)	(B)	(A)	(C)	(D)	(B)	(C)	(C)
81.	82.	83.	84.	85.	86.	87.	88.	89.	90.
(B)	(D)	(A)	(C)	(D)	(B)	(C)	(A)	(B)	(A)
91.	92.	93.	94.	95.	96.	97.	98.	99.	100.
(A)	(C)	(B)	(B)	(C)	(A)	(C)	(A)	(A)	(D)
101.	102.	103.	104.	105.	106.	107.	108.	109.	110.
(C)	(A)	(C)	(C)	(B)	(B)	(C)	(D)	(C)	(C)
111.	112.	113.							
(C)	(B)	(D)							