Indices & Logarithm

Date: 18/06/25

1: Revision Worksheet :—

MCQs

1. Value of $\sqrt[5]{\sqrt[3]{9^2}}$ is —

(a) $(9)^{1/5}$ (b) $3^{6/5}$ (c) $3^{4/15}$ (d) $9^{4/5}$

2. $\left\{(2^{-3})^2\right\}^0$ is equal to —

(a) $\frac{1}{2^6}$ (b) 2^{-6} (c) 0 (d) 1

3. The value of $4\log_{10}5 + 2\log_{10}4$ is —

(a) 5 (b) 4 (c) 6 (d) 3

4. If $a = c^{27}$, $b = a^{3x}$, $c = b^{54}$, then the value of xyz is —

(a) 1 (b) $\frac{1}{30}$ (c) $\frac{1}{6}$ (d) 6

5. The value of $\log_{81} x = \frac{3}{2}$, then x is —

(a) 81 (b) 729 (c) 243 (d) 5

(6) characteristic of $\log 0.000275$ is —

(a) $\bar{3}$ (b) $\bar{4}$ (c) 3 (d) 4

(7) characteristic of $\log 53245.67$ is —

(a) 5 (b) 3 (c) $\bar{3}$ (d) 4

(8) If $16^{2x+1} = 32$, then the value of 3^{2x-3} is

(a) 256 (b) 18 (c) 81 (d) 9

(9) If $\log_9 x = 2.5$, then value of x is —

(a) 343 (b) 400 (c) 243 (d) 441

(10) The value of b^2 in $\frac{1}{\log_a n} + \log_n c = \frac{2}{\log_b n}$ is

(a) nb (b) an (c) ab (d) ac

(11) The value of $\frac{1}{2}\log 16 + \log 25 - \log 1000$ is —

(a) 2 (b) -1 (c) 3 (d) 4

(12) Assertion (A): If $\log_4 256 = 3x+9$, then $x = \frac{-5}{3}$

Reason (R): $\log x = \log y \Rightarrow x = y$

(13) Assertion (A): $\left(\frac{5}{2}\right)^{-3} \times \left(\frac{2}{5}\right)^{2} = \left(\frac{2}{5}\right)^{5}$

Reason (R): $a^{-n} = \left(\frac{1}{a}\right)^{n}$ and $a^m \times a^n = a^{m+n}$

(14) Assertion (A): If $\log(x+1) + \log(x-1) = \log 11 + 2\log 3$, then $x = 10$

Reason (R): $\log_a mn = \log_a m + \log_a n$

(15) Assertion (A): Characteristic of $\log 2375.001$ is [redacted].3.

Reason (R): The characteristic of the logarithm of any number, which has n digits in its integral part is $(n+1)$