

Topic : Logarithm

Type of Questions

M.M., Min.

Single choice Objective (no negative marking) Q.1,2,3

(3 marks, 3 min.)

[9, 9]

Multiple choice objective (no negative marking) Q.4,5

(5 marks, 4 min.)

[10, 8]

Subjective Questions (no negative marking) Q.6,7

(4 marks, 5 min.)

[8, 10]

1. If $\log_7 \log_2 \log_\pi x$ vanishes, then x equals:

- (A) π^2 (B) 4 (C) 49 (D) none

2. If $\log_3 x = a$ and $\log_7 x = b$, then which of the following is equal to $\log_{21} x$?

- (A) ab (B) $\frac{ab}{a^{-1} + b^{-1}}$ (C) $\frac{1}{a+b}$ (D) $\frac{1}{a^{-1} + b^{-1}}$

3. Let $N = \frac{81^{\frac{1}{\log_5 9}} + 3^{\frac{3}{\log_{\sqrt{6}} 3}}}{409} \cdot \left((\sqrt{7})^{\frac{2}{\log_{25} 7}} - 125^{\log_{25} 6} \right)$, then value of $\log_2 N$ is equal to :

- (A) 0 (B) 1 (C) -1 (D) none

4. If $\ell n(x+z) + \ln(x-2y+z) = 2 \ln(x-z)$, then :

- (A) $y = \frac{2xz}{x+z}$ (B) $y^2 = xz$ (C) $2y = x+z$ (D) $\frac{x}{z} = \frac{x-y}{y-z}$

5. Which of the following when simplified reduces to unity ?

- (A) $\log_{1.5} \log_4 \log_{\sqrt{3}} 81$ (B) $\log_2 \sqrt{6} + \log_2 \sqrt{\frac{2}{3}}$
(C) $-\frac{1}{6} \log_{\frac{\sqrt{3}}{2}} \left(\frac{64}{27} \right)$ (D) $\log_{3.5} (1+2+3 \div 6)$

6. If $\log_{\sqrt{8}} b = 3\frac{1}{3}$, then b is equal to

7. Which is greater

- (i) $\log_{\frac{1}{3}} \frac{1}{80}$ or $\log_{\frac{1}{2}} \left(\frac{1}{15 + \sqrt{2}} \right)$ (ii) $\log_3 5$ or $\log_{17} 25$ (iii) $\log_{\frac{1}{5}} \frac{1}{7}$ or $\log_{\frac{1}{7}} \frac{1}{5}$

Answers Key

1. (A) 2. (D) 3. (A) 4. (A)(D)

5. (A)(B)(C)(D) 6. $b = 32$

7. (i) $\log_{\frac{1}{2}} \left(\frac{1}{15 + \sqrt{2}} \right)$ (ii) $\log_3 5$ (iii) $\log_{\frac{1}{5}} \frac{1}{7}$