

Topics : Fundamentals of Mathematics, 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 marks, 4 min.)	[5, 4]
True or False (no negative marking) Q.5	(2 marks, 2 min.)	[2, 2]
Fill in the Blanks (no negative marking) Q.6,7	(4 marks, 4 min.)	[8, 8]

1. The expression $E = 81^{\log_{0.3} \left(\frac{1}{\sqrt{4+2\sqrt{3}} - \sqrt{4-2\sqrt{3}}} \right)}$ is simplified to.
- (A) 16 (B) 4 (C) 2 (D) $\frac{1}{2}$
2. The complete solution set of $x - \sqrt{1-|x|} < 0$ is
- (A) $\left[-1, \frac{-1+\sqrt{5}}{2} \right)$ (B) $[-1, 1]$ (C) $\left(-1, \frac{-1+\sqrt{5}}{2} \right)$ (D) $\left(\frac{-1+\sqrt{5}}{2}, \frac{1+\sqrt{5}}{2} \right)$
3. If $\sqrt{1-x} > \sqrt{1+x}$, then the complete solution set of x is
- (A) $(-\infty, 0)$ (B) $[-1, 1]$ (C) $(0, 1]$ (D) $[-1, 0)$
4. For the equation $\log_{3\sqrt{x}} x + \log_{3x} \sqrt{x} = 0$, which of the following do not hold good?
- (A) no real solution (B) one prime solution
(C) one integral solution (D) no irrational solution
5. State whether the following statements are **True** or **False**.
- (i) If $\log_a x = \log_b y$, then each is equal to $\log_{ab} xy$.
(ii) The value of x satisfying the equation $\log_3 x + \log_9 x + \log_{27} x = 11$ is a perfect square as well as a perfect cube
6. The value of 'x' satisfying the equation, $4^{\log_9 3} + 9^{\log_2 4} = 10^{\log_x 83}$ is _____.
7. Real x satisfying the equation $9^{\log_3(\log_2 x)} = \log_2 x - (\log_2 x)^2 + 1$ is _____.

Answers Key

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

5. (i) True (ii) True 6. 10 7. $x = 2$