O. P. JINDAL SCHOOL, SAVITRI NAGAR

Weekly Test -1 (2025 – 2026)

Class : XI **Max Marks : 20**

Subject: Applied Mathematics **Time: 1 Hour**

General Instructions:

(i) All the questions are compulsory.

(ii) The question paper consists of 13 questions divided into 3 sections. Section A has 8 questions of 1 mark each, section B has 3 questions of 2 marks and section C has 2 questions of 3 marks each.

(iii) There is no overall choice. However, internal choice has been provided in 2 questions You have to attempt only one of the alternatives in all such questions.

(iv) Use of calculator is not allowed but logarithm table is allowed.

Section – A

1. Which of the following binary numbers is equivalent to decimal number 25?

   (a) 11011 (b) 11001 (c) 10111 (d) 10111

2. Which of the following decimal numbers is equivalent to binary number 110111?

   (a) 59 (b) 57 (c) 55 (d) 61

3. If $\log(3x + 1) = 2$, then the value of x is :

   (a) 99 (b) 33 (c) $\frac{1}{3}$ (d) 3

4. If $\log 325.6 = 2.5127$, then $\log 0.03256$ is

   (a) -2.5127 (b) -1.5127 (c) $\bar{2}.5127$ (d)) $\bar{2}.5127$

5. The value of $\frac{\log 8 - \log 2}{log 32}$ is :

   (a) $\frac{2}{5}$ (b) $\frac{1}{4}$ (c) $-\frac{2}{5}$ (d) $\frac{1}{3}$

6. The value of $2 \log 2 + \log 5 - \frac{1}{2} \log 36 - \log \frac{1}{30}$ is:

   (a) 2 (b) 1 (c) $\frac{1}{2}$ (d) log 2

7. If $\left(\sqrt{\frac{3}{5}}\right)^{x+1} = \frac{125}{27}$ then x is equal to

   (a) 7 (b) -7 (c) $\frac{1}{7}$ (d) 6

8. The sum of binary numbers 101001 and 110110 is :

   (a) 1110111 (b) 1110011 (c) 1011111 (d) 1001111

Section – B

9. Simplify: $(81)^{\frac{3}{4}} - \left(\frac{1}{32}\right)^{\frac{-2}{5}} + (8)^{\frac{1}{3}} \left(\frac{1}{2}\right)^{-1} (2)^0$

10. If $a = c^z$, $b = a^x$ and $c = b^y$, prove that $xyz = 1$

11. Solve for x : $\log_2(x^2 - 1) = 3$

OR

Solve for x : $\log x = \frac{\log 125}{\log \frac{1}{5}}$

Section – C

12. Prove that :

$$\frac{1}{\log_a abc} + \frac{1}{\log_b abc} + \frac{1}{\log_c abc} = 1$$

13. Calculate the compound interest earned on Rs. 300000 for 5 years at the rate of 10% p.a. compounded quarterly?

OR

A new machine costs Rs. 640000. Its price depreciates at the rate of 10% p.a. What will be the price of machine after 7 years?

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