O. P. JINDAL SCHOOL, SAVITRI NAGAR

Weekly Test -2 (2026 – 2027)

Class : XI **Max Marks : 20**

Subject: Mathematics **Time: 1 Hour**

General Instructions:

(i) All the questions are compulsory.

(ii) The question paper consists of 11 questions divided into 3 sections. Section A has 5 questions of 1 mark each, section B has 3 questions of 2 marks and section C has 3 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.

Section - A

1. What is the value of $i^{45} + i^{46} + i^{47} + i^{48}$?
   (a) -1 (b) 1 (c) 0 (d) i

2. What is the the modulus of $\frac{1+i}{1-i} - \frac{1-i}{1+i}$?
   (a) 0 (b) 4 (c) 2 (d) 1

3. There are 600 student in a school. If 400 of them can speak Telugu, 300 can speak Hindi, then the number of students who can speak both Telugu and Hindi is:
   (a) 100 (b) 200 (c) 300 (d) 400

4. If A = {1, 2, 3} and B = {4, 5} then number of relations from A to B is:
   (a) 6 (b) 8 (c) 9 (d) 64

5. If A = {1, 2, 3, 4}, B = {2, 3, 5, 6} and C = {3, 4, 6, 7}, then
   (a) A – (B ∩ C) = {1, 3, 4} (b) A – (B ∩ C) = {1, 2, 4}
   (c) A – (B ∪ C) = {2, 3} (d) A – (B ∪ C) = ∅

Section – B

6. Solve the given quadratic equation $2x^2 + x + 1 = 0$.

7. Express the complex number $\frac{i-1}{\sqrt{2}+3i}$ in the standard form (a + ib)

OR

Express the complex number 1 + i in the polar form.

8. Let A = {1, 2, 3, ..., 14}. R = {(x, y): 3x – y = 0}. Write R in roster form. Also find the Domain, Codomain and Range of R.

Section – C

9. Find the domain and the range of the real function f defined by $f(x) = \frac{1}{\sqrt{9-x^2}}$

10. Find the domain and range of the real function f defined by $f(x) = \frac{x}{1+x^2}$

11. If $\left(\frac{1+i}{1-i}\right)^3 - \left(\frac{1-i}{1+i}\right)^3 = x + iy$, then find the real values of x and y.

OR

If $\left(\frac{1+i}{1-i}\right)^m = 1$, then find the least positive integral value of m.

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