

# SARALA BIRLA PUBLIC SCHOOL



SARALA BIRLA  
PUBLIC SCHOOL

(SARALA BIRLA GROUP OF SCHOOLS)

**Mahilong, Ranchi.**

**Revision Test (Mathematics)**

**Class - XI**

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## Section -A

**( Each questions carries one mark )**

1. If  $\sin\theta + \cos\theta = 1$ , then the value of  $\sin 2\theta$  is

- i) 1
- ii)  $\frac{1}{2}$
- iii) 0
- iv) -1

2. If  $C(n,9) = C(n,8)$ , then the value of 'n' is

- i) 9
- ii) 8
- iii) 17
- iv) 10

3. Assertion (A) :  $i^2 = i.i = \sqrt{-1} . \sqrt{-1} = \sqrt{\{-1\}.\{-1\}} = \sqrt{1} = 1$ .

Reason(R) :  $\sqrt{a} . \sqrt{b} = \sqrt{ab}$  for all positive real number 'a' and 'b'.

- i) Both A and R is true and R is correct explanation of A .
- ii) Both A and R is true and R is not correct explanation of A .
- iii) A is true but R is false.
- iv) A is false but R is true.

4. Solve  $24x < 100$ , When 'x' is a natural number.

5. Write the general term in the expansion of  $(x^2-y)^6$ .

## Section -B

**( Each questions carries two marks )**

6. If  $\cot x = -5/12$ , 'x' lies in second quadrant, then find the value of  $\sin x$  and  $\sec x$ .

7. If  $P(4, r) : P(5, r-1) = 6 : 5$ , then find the value of 'r'.

8. If  $1/8! + 1/9! = x/10!$ , then find the value of 'x'.

## Section -C

**( Each questions carries four marks )**

9. Solve the given system of inequalities graphically.

$$x + 2y \leq 10,$$

$$x + y \geq 1,$$

$$x - y \leq 0,$$

$$x \geq 0,$$

$$y \geq 0.$$

10. Using binomial theorem, evaluate  $(99)^5$ .

Or

Find the modulus and the argument of the complex number  $z = -1 - i\sqrt{3}$ .

Section -D

( Each questions carries six marks )

11. Prove that  $\cos 2x \cdot \cos(x/2) - \cos 3x \cdot \cos(9x/2) = \sin 5x \cdot \sin(5x/2)$ .

Or

Prove by the principle of mathematical induction for all  $n \in \mathbb{N}$ .

$$1 \cdot 2 \cdot 3 + 2 \cdot 3 \cdot 4 + 3 \cdot 4 \cdot 5 + \dots + n(n+1)(n+2) = n(n+1)(n+2)(n+3)/4$$