ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

Worksheet-7

SUBJECT – MATHEMATICS

1st term

Chapter: Algebra **Class: XI**

Topic: Complex Numbers **Date: 09.07.2020**

Choose the correct option **(1 X 15= 15)**

1. If $\bar{z} = -3 + 5i$ *then* $z = ?$
   a) $-3 - 5i$
   b) $3 + 5i$
   c) $5 + 3i$
   d) $5 - 3i$

2. In If $z = -2 - \sqrt{-5}$ *then* $\bar{z} = ?$
   a) $-2 + \sqrt{-5}$
   b) $2 - \sqrt{-5}$
   c) $2 + \sqrt{-5}$
   d) $2i - \sqrt{5}$

3. Which one is true ?
   a) $2 + 3i > 1 + 4i$
   b) $5 + 9i > 9 + 5i$
   c) $5 - 9i > 9 + 5i$
   d) None of these.

4. Simplify $2\sqrt{-18} + 3\sqrt{-50} - 6\sqrt{-8} = ?$
   a) $9\sqrt{2}i$
   b) $9\sqrt{3}i$
   c) $8\sqrt{2}i$
   d) $\sqrt{2}i$

5. The modulus of the complex number $1 + \sqrt{-8} = ?$
   a) 2
   b) -5
   c) 8
   d) 3

6. If $x \text{ and } y \text{ are real, and } x + iy = 0 \text{ then} -$
   a) x = 0, y = 1
   b) x = 1, y = 0
   c) x = 1, y = 1
   d) None of these.

7. $1 + i + i^2 + i^3 + i^4 = ?$
   a) 0
   b) 1
   c) i
   d) 2

8. If (a+ib)(c+id) is purely real, then which of the followings is true -
   a) ac-bd=0
   b) bc=0
   c) ad=0
   d) bc+ad=0

9. Simplify $(2\sqrt{-5} + 3\sqrt{-2})(-3\sqrt{-8} - \sqrt{-20} = ?$
   a) $56 + 18\sqrt{10}$
   b) $58 + 16\sqrt{10}$
   c) $56 + 18\sqrt{-10}$
   d) None of these.

10. **The modulus of the complex number $-2\sqrt{3} + 2\sqrt{2}i$ =?**

a) 2
b) -2
c) $2\sqrt{5}$
d) $-2\sqrt{5}$

11. **The modulus of the complex number $(3 - 4i)(-2 + 5i)$ =?**

a) 5
b) 10
c) 15
d) 20

12. $\left|\frac{x-iy}{-x+iy}\right|$ = ?

a) 1
b) 2
c) 3
d) 4

13. $(1 + i)^2 + (1 - i)^2$= ?

a) 4
b) 2
c) 1
d) 0

14. $(1 + i)^{-2} - (1 - i)^{-2}$= ?

a) -i
b) i
c) 2
d) None of these.

15. $\frac{i+i^2+i^3+i^4}{1+i} = ?$

a) -1
b) 0
c) 1
d) i

Prepared by :-

SUKUMAR MANDAL (SkM).