INTERNATIONAL INDIAN SCHOOL BURAIDAH

WORK SHEET-CLASS-11-2026-27

Ch:4 Complex numbers And Quadratic Equations

MCQ:

1-The value of i^{-999} is

(a) i (b) 1 *(c) -1* *(d)* $-i$

2-The roots of the equation $x^2 - 2\sqrt{2}\,x + 1 = 0$ *are*

(a)Real and disntinct (b) Real and Equal (c) Imaginary and equal (d) Imaginary and different

3-The modulus of 5 + 4i is

$(a)\ 41$ (b) -41 (c) $\sqrt{41}$ (d) $\sqrt{-41}$

4-If $(2a + 2b) + i(b - a) = -4i$, then the real value of a and b are respectively

(a) *2 , 3* *(b) 2 , -2* *(c) 3 , 1* *(d) -2 , 2*

5-If $(\frac{1-i}{1+i})^{100} = a + ib$, *the the value of* a *and* b *are respectively*

(a) *1 , 0* *(b) 0 , 1* *(c) 1 , 2* *(d) 2 , 1*

6 *–If* $\frac{(1+i)^2}{2-i} = x + iy$, *the the value of* $x + y$ *is*

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

Subjective Type Questions

1-Find the value of $i^4 + i^5 + i^6 + i^7$

2-Write the additive inverse of $6i - i\sqrt{-49}$

3-Write the multiplicative inverse of $(2 + i\sqrt{3}\,)^2$

4-Write the conjugate 0f $\frac{2-i}{(1-2i)^2}$

5-Evaluate $\sqrt{-16} + 3\sqrt{-25} + \sqrt{-36} - \sqrt{-625}$

6-Find x *and* y *if* $(x + iy)(2 - 3i) = 4 + i$

7-Find the real value of a for which $3i^3 - 2ai^2 + (1 - a)i + 5$ *is real .*

8-If $x + iy = \sqrt{\frac{1+i}{1-i}}$, *then prove that* $x^2 + y^2 = 1$

9-Prove that $a^2 + b^2 = 1$ *and* $\frac{b}{a} = \frac{2c}{c^2-1}$, *if* $a + ib = \frac{c+i}{c-i}$

10-Find real π *such that* $\frac{3+2i\,Sin\theta}{1-2i\,Cos\theta}$ *is purely real.*

11-If $\left|\frac{z-5i}{z+5i}\right| = 1$, *show that* z *is real number*

12-Solve the Quadratic equation $x^2 + x + \frac{1}{\sqrt{2}} = 0$

13-Solve the equation $\sqrt{3}\,x^2 - \sqrt{2}\,x + 3\sqrt{x} = 0$

14-if the roots of $ax^2 + x + b =$
$0\ are\ real\ and\ distinct\ ,show\ that\ the\ roots\ of\ the\ equation\ \frac{x^2+1}{x} = 4\sqrt{ab}$
15-Let p,q be the roots of an equation $3x^2 + 6x + 2 = 0$ *form an equation whose roots are* $\frac{-p^2}{q}\ ,\frac{-q^2}{p}$
15-Solve the equation $\sqrt{3}\,x^2 - \sqrt{2}\,x + 3\sqrt{x} = 0$