**ASSIGNMENT -1**

Q.1: Simplify the following:

(i) (2 – 3i) + (1 + 2i)

(ii) (3 + 5i) – (5 – 3i)

(iii) (9 + 7i) – (–9 + 7i) + (-18 + i)

(iv) (2 – 3i)(3 + 5i)

(v) (3 + 4i) (1 - 2i) (1 + i)

Q.2: Find the conjugate of each of the following:

(i) – 2 + 3i , (ii) (1 + i)(– 2 – i) , (iii) – 3i(2 + 5i) , (iv) (-5 + 3i) (2 – 3i)

Q.3: Reduce of the following to the form a + bi.

(i) (3 – i )3 + 2i

(ii) (2 + 3i) (3 + 2i) 4– 3i

Q.4: Extract the square root of the following complex numbers:

(i) –3 + 4i (ii) 8 – 6i (iii) 24 + 10 i

Q.5: Prove that : = Cos θ + i Sin θ

Q.6: The resultant impedance Z of two parallel circuits of impedances z1 and z2 is given by the formula 1 z = 1 z1 + 1 z2 , Find the resultant impedance z when z1 = 3 + 4i, z2 =4 – 2i

Q.7 : Show that the equation |z + i| = 4 represents a circle and find its centre and radius.