ASSIGNMENT – 1(BASIC) ON COMPLEX NUMBER

SECTION – A (Onemark Questions)

1. Multiply $\sqrt{2} + i$ in to its conjugate.
2. Find real x and y , if (x – iy) (3 + 5i) is the conjugate of – 6 – 24i
3. Find the multiplication inverse of $\sqrt{3}$ - i
4. **The standard form of $(1 - i)^3$ is ……**
5. **$1 + i^5 + i^{10} - i^{15}$ is ------**
6. The modulus of $(1 - 2i)^{-3}$ is …
7. The the principal argument of the complex number $-i$ is ……

8. Square root of 'i' is (a) $\frac{1}{\sqrt{2}}$ (b) $-\frac{1}{\sqrt{2}}$ (c) $\frac{1+i}{\sqrt{2}}$ (d) $\pm\frac{1+i}{\sqrt{2}}$

SECTION – B (Two marks Questions)

9. Prove that $\left(\frac{2+3i}{3+4i}\right)\left(\frac{2-3i}{3-4i}\right)$ is purely real

10. If $a + ib = \frac{c+i}{c-i}$, prove that $a^2 + b^2 = 1$

11. What is the value of $\frac{i^{4n+1} - i^{4n-1}}{2}$

12. Express $\left(\frac{1}{1-4i} - \frac{2}{1+i}\right)\left(\frac{3-4i}{5+i}\right)$ in to a+ib form

SECTION – C (Four marks Questions)

13. Find the modulus and argument of the $\frac{1+2i}{1-3i}$ complex numbers and convert them in to polar form .

14. Write the real value for which $\frac{1 - i\sin\alpha}{1 + 2i\sin\alpha}$ is purely real

15. If $a+ ib = \frac{c+i}{c-i}$ where a, b, c are real , prove that $a^2 + b^2 = 1$ and $\frac{b}{a} = \frac{2c}{c^2-1}$

16. Find the values of x and y if $\frac{(1+i)x - 2i}{3+i} + \frac{(2-3i)y + i}{3-i} = i$