	BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA **Mathematics** **Class XI (Revision assignment)**
1.	z_1 = 1+2i and z_2 = 2+3i. Then z_1z_2 = A) 2+6i B)3+2i C) -4+7i D)4-7i
2.	The value of i^{29} + 1/i^{29} A) 1 B) 0 C) -1 D) I
3.	Let z_1 = 2 – i, z_2 = -2 + i. Find Re$\left(\frac{z_1z_2}{\overline{z_1}}\right)$ A) 25 B) −25 C) 23 D) −23
4.	Assertion (A) : Conjugate of 2+3i lies in the fourth quadrant in complex plane. Reason (R) : x+iy lies in the fourth quadrant in complex plane if x<0 and y>0. A) Both Assertion (A) and Reason(R) are true and Reason(R) is the correct explanation of Assertion (A). B) Both Assertion (A) and Reason(R) are true but Reason(R) is NOT the correct explanation of Assertion (A). C) Assertion (A) is true but Reason(R) is false. D)Assertion (A) is false but Reason(R) is true
5.	Assertion (A) : If $\lvert z_1 + z_2\rvert^2 = \lvert z_1\rvert^2 + \lvert z_2\rvert^2$, then z_1/z_2 is purely imaginary. Reason (R): If z is pure imaginary then z + $\overline{z}$ = 0
6.	If n is any integer, then the value of $(1-i)^n\left(1-\frac{1}{i}\right)^n$
7.	Find the real θ such that $\frac{3+2isin\theta}{(1-2isin\theta)}$ is purely real .
8.	Evaluate $\sum_{n=1}^{12}(i^n + i^{n+1}), n \in N$
9.	If $\lvert z^2 - 1\rvert = \lvert z\rvert^2 + 1$ the show that z lies on Y-axis
10.	In advanced drone technology, computer algorithms simulate and control movement in a 2D space. Complex numbers are used to represent positions and rotations efficiently. Suppose at one instant, the drone is at position z_1 = 2 + 2i, and after a simulated rotation and translation, its new position becomes z_2 = -1 + 3i. Using complex addition and multiplication, programmers can determine the resultant path, orientation, and adjust controls accordingly. Plotting these points on an Argand plane helps in visualizing movements as geometric transformations. based on the information answer the following questions: (1) Compute the resultant position z = $z1$ + $z2$. (2) Find $z1 \cdot z2$ and interpret whether the output is real or complex. (3) Find the modulus and conjugate of z (4) Plot $z1$, $z2$, and z on the Argand plane.