SUMMER HOLIDAY HOMEWORK
CLASS- XI
SUBJECT- MATH'S

Q1 Write the following sets in roster form

(i) The set of all even integers lying between -5 and 5

(ii) $\{x : x \text{ is an integer and } -3 < x \le 5\}$

Q2 Write the following sets in the set builder form

(i) The natural numbers which are multiples of 4 and less than 25

(ii) $\{15, 16, 17, 18, 19\}$

Q3 For any three sets A, B and C prove that
$$A \cap (B-C) = (A \cap B) - (A \cap C)$$

Q4 Given three sets A, B and C, draw appropriate Venn diagram for each of the following

(i) $A \cap (B \cup C)$

(ii) $(A \cap B) \cup (A \cap C)$

Q5 In a town of 1000 families, it was found that 40% families buy newspaper A, 20% families buy newspaper B and 10% families buy newspaper C, 5% families buy A and B, 3% buy B and C and 4% buy A and C. If 2% families buy all the three papers, find the number of families which buy

(i) A only (II) B only (III) None of A, B or C

Q6 Evaluate the following

(I) i^{4n+3} (II) $(\sqrt{-1})^{4m+7}$

Q7 Express $\left[i^{18} + \left(\frac{1}{i}\right)^{25} \right]^3$ in the form of $a+ib$

Q8 Find real θ such that $\dfrac{3+2i\sin\theta}{1-2i\sin\theta}$ is purely real

Q9 Find the square root of $2 - 2\sqrt{3}\,i$

Q10 Represent $z = \dfrac{2+6\sqrt{3}\,i}{5+\sqrt{3}\,i}$ in polar form

Q11 If $|z_1| = 1$ and $|z_2| = 1$ then show that $\left| \dfrac{1}{z_1} + \dfrac{1}{z_2} \right| = |z_1 + z_2|$

Q12 The centroid of a triangle ABC is at the point $(1,1,1)$. If the coordinates of A and B are $(3,-5,7)$ and $(-1,7,-6)$, respectively, find the coordinates of the point C

Note :- 1. Revise your full syllabus done in your class

2. Holiday Home work will be checked on 3rd, 4th and 5th July