MATHEMATICS HSSC-I

Time allowed: 2:35 Hours Total Marks Section B & C: 80

SECTION-B (Marks 40)

Q.2 Attempt any TEN parts. All parts carry equal marks. (10×4=40)

(i) Simplify by using De Moivre's Theorem

$$\left(-\frac{1}{2}+\frac{\sqrt{3}}{2}i\right)^3$$

(ii) Give logical prove of the theorem

$$(A \cup B)' = A' \cap B'$$

(iii) Without expansion verify that

$$\begin{vmatrix} -a & 0 & c \\ 0 & a & -b \\ b & -c & 0 \end{vmatrix} = 0$$

(iv) Find the values of a and b if -2 and 2 are the roots of the polynomial $x^3 - 4x^2 + ax + b$

(v) Resolve into partial fractions $\frac{x^2+1}{x^3+1}$.