

**20 Exercise:**

**3.** Enter the following matrices in MATLAB and then compute the following parts i-viii.

$$A = \begin{bmatrix} 2 & 5 + 2i & 3 - i; & 5 - 2i & 7 & 4 + 3i; & 3 + i & 4 - 3i & 1 \end{bmatrix}$$

$$B = \begin{bmatrix} 3 & 1 + i & i; & 1 - i & 1 & 3; & -i & 3 & 1 \end{bmatrix}$$

$$C = \begin{bmatrix} 1 + i & 15 + i & 1 - 4i; & 3i & 5 - i & 2 + 5i; & 4i & -3 + i & 2 - 7i \end{bmatrix}$$

i.)	Which one of the matrices A, B and C are Hermitian ?
ii.)	Which one of the matrices A, B and C are Normal ?
iii.)	Which one of the matrices A, B and C are Unitary ?
iv.)	Compute $AB$ .
v.)	Compute $A + \overline{B}$ .
vi.)	Compute $A + B$ .
vii.)	Compute $A^{-1}\overline{B}$ .
viii.)	Compute $D = (A + \overline{A})/2$ then compute $E = (A - \overline{A})/2i$ .
ix.)	Let $F = D + iE$ . Show that $F = A$ .