

Ans. to the Q no: 2

Given

$$A = \begin{bmatrix} 5 & -7 & 1 \\ -7 & 8 & 2 \\ 1 & 2 & -4 \end{bmatrix}$$

$$2A = \begin{bmatrix} 10 & -14 & 2 \\ -14 & 16 & 4 \\ 2 & 4 & -8 \end{bmatrix}$$

$$A^T = \begin{bmatrix} 5 & -7 & 1 \\ -7 & 8 & 2 \\ 1 & 2 & -4 \end{bmatrix}$$

$$\text{tr}(A^T) = 5 + 8 - 4 = 9$$

$$2A = \begin{bmatrix} 10 & -14 & 2 \\ -14 & 16 & 4 \\ 2 & 4 & -8 \end{bmatrix}$$

$$= 10(14 \cdot (-8) + 16) + 14(4 \cdot -8 + 4 \cdot 2) + 2 \cdot (-14 \cdot 4 + 16 \cdot 2)$$

$$= -960 + 1680 + 176$$

$$= 896$$

$$A = \begin{pmatrix} 5 & -7 & 1 \\ -7 & 8 & 2 \\ 1 & 2 & -4 \end{pmatrix}$$

$$= 5(8 \cdot 4 + 4) + 7(-7 \cdot 4 + 8) + 1(-7 \cdot 2 + 8)$$

$$= 5(-28) + 140 - 6$$

$$= -140 + 140 - 6$$

$$= -6$$

$$A^V = (-6)^V$$

$$= 36$$

$$\therefore A^V + 2A + \text{tr}(A^+) = 9 + 896 + 36 = 941$$