Question 3: If

$$A = \begin{bmatrix} \alpha & 0 \\ 1 & 1 \end{bmatrix} and\ B = \begin{bmatrix} 1 & 0 \\ 5 & 1 \end{bmatrix}$$

then value of α for which A^2 = B, is

A) 1

B) -1

C) 4

D) No real values

Solution:

$$A^2 = \begin{bmatrix} \alpha & 0 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} \alpha & 0 \\ 1 & 1 \end{bmatrix} = \begin{bmatrix} \alpha^2 & 0 \\ \alpha+1 & 1 \end{bmatrix}$$

Clearly, no real value of a.