Step-1

Consider the matrivces:

$$A = \begin{bmatrix} 0 & 1 & 2 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$
$$B = \begin{bmatrix} 1 & 1 \\ -1 & -1 \end{bmatrix}$$

The eigenvalues of A are given by,

$$\lambda_1 = 1$$
$$\lambda_2 = 4$$
$$\lambda_3 = 6$$

Thus, the Jordan form of A is given by,

$$J = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 6 \end{bmatrix}$$

The eigenvalues of B are given by,

$$\lambda_1 = 0$$
$$\lambda_2 = 0$$

The rank of matrix B is 1.

Thus, the Jordan form of B is given by,

$$J = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$$

Step-2

Thus, $\boxed{J = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 6 \end{bmatrix}}$ and $\boxed{J = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}}$.