King Fahd University of Petroleum and Minerals
MATH-302
Quiz 2

Name:- **ID:-** **Sec.:**

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(1) (a) Find an orthogonal matrix **P** that diagonalizes $\mathbf{A} = \begin{pmatrix} 1 & 0 & 7 \\ 0 & 1 & 0 \\ 7 & 0 & 1 \end{pmatrix}$ and the diagonal matrix **D** such that $\mathbf{D} = \mathbf{P}^T\mathbf{AP}$.

(b) Find the eigenvalues of $\boldsymbol{A^{-1}}$.

(2) Find the inverse of $\mathbf{A} = \begin{pmatrix} -1 & 3 & 0 \\ 1 & -2 & 1 \\ 0 & 1 & 2 \end{pmatrix}$.