King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math-202 Semester-133 QUIZ V

NAME: S.No. ID:

Maximum Marks: 15 Section:06 Time Allowed: 50 minutes

Q:1 (6 points) Use Gauss-Jordan elimination to find inverse of $A = \begin{pmatrix} 2 & 0 & 1 \\ -2 & 3 & 4 \\ -5 & 5 & 6 \end{pmatrix}$

Q:2 (6 points) Let $A = \begin{pmatrix} 1 & 2 & 1 \\ 6 & -1 & 0 \\ -1 & -2 & -1 \end{pmatrix}$

(a) Verify that eigenvalues of A are $\lambda_1 = 0, \lambda_2 = -4$ and $\lambda_3 = 3$.

(b)Find an eigenvector corresponding to λ_2.

Q:3 (3 points) Show that $X_1 = \begin{pmatrix} 1 \\ -1 \end{pmatrix} e^{-2t}$ and $X_2 = \begin{pmatrix} 1 \\ -1 \end{pmatrix} e^{6t}$ solutions of a system $X' = AX$ form a fundamental set of solutions.