

Math 302-123 Quiz 2A

Name:.....Sec#:.....ID#:.....Ser#:.....

Q.1: Let A be a 5×7 matrix. Answer the following:

- (a) What can be the maximum rank of A ?
- (b) If $\text{Rank}(A)=2$, how many free parameters can be in the solution?
- (c) If $\text{Rank}(A-B)=3$, then what should be the $\text{Rank}(A)$ so that the system $AX=B$ is consistent?

Q.2: Solve the linear system using matrix inverse method

$$\begin{aligned}x_1 + x_3 &= -4 \\x_1 + x_2 + x_3 &= 0 \\5x_1 - x_2 &= 6\end{aligned}$$

Q.3: Find eigenvalues and eigenvectors of the matrix $A = \begin{bmatrix} 0 & 4 & 0 \\ -1 & -4 & 0 \\ 0 & 0 & -2 \end{bmatrix}$