Quiz-28

Q.1 If all the eigenvalues of a real symmetric matrix A are positive then which of the following is true.

(A) A is a diagonal matrix (B) A is an upper triangular matrix (C) A is a positive definite matrix (D) A is a positive semidefinite matrix

Q.2 If all the pivot elements of a real symmetric matrix A are either positive or zero then which of the following is true.

(A) A is a diagonal matrix (B) A is an upper triangular matrix (C) A is a positive definite matrix (D) A is a positive semidefinite matrix

Q.3 In singular value decomposition, any m by n matrix A can be factored into $A=UZV^T=$ (orthogonal)(diagonal) (orthogonal). Then which of the following is false.

(A) order of U in m by m (B) order of V in n by n (C) order of Z in m by n

(D) Z is a diagonal matrix with equal diagonal elements

Q.4 In singular value decomposition, any m by n matrix A can be factored into $A=UZV^T=$ (orthogonal)(diagonal) (orthogonal). Then the columns of the matrix U are the orthonormal eigenvectors of which matrix.

(A) A (B) A^T (C) A^TA (D) AA^T

Q.5 What is the norm of the matrix $A=\begin{bmatrix} 2 & -1 \\ -1 & 2 \end{bmatrix}$?

(A) 4 (B) 3 (C) 2 (D) 1

Q.6 What is the condition number of the matrix $A=\begin{bmatrix} -2 & 0 \\ 0 & 2 \end{bmatrix}$?

(A) 1 (B) 2 (C) 3 (D) 4

Q.7 The Gauss-Seidel matrix of the matrix $A=\begin{bmatrix} 3 & 0 \\ -1 & 3 \end{bmatrix}$ is a which type of matrix.

(A) any diagonal matrix of order 2 (B) any upper triangular matrix of order 2

(C) identity matrix of order 2 (D) zero matrix of order 2