Ministry of Higher Education & Scientific Research
Salahaddin University – Erbil - College of Administration & Economics
Department: Statistics & information
Stage: Two - First Semester (2023-2024)
Lecturers: Zainab Abdulla M.

Question Bank: (matrices)

Q 1/ Find the elements of Matrix $A=a_{ij}$ for size(3×2) ,where: $a_{ij} = i^2 + 3j$

Q 2/ If A.B = B.A , Show that $(A.B)^4 = A^4 \cdot B^4$

Q 3/ If: $A=\begin{bmatrix} -4 & 0 \\ 2 & 0 \end{bmatrix}$, $B=\begin{bmatrix} 6 & -1 \\ 5 & 2 \end{bmatrix}$, $C=\begin{bmatrix} 6 & -1 \\ 4 & 9 \end{bmatrix}$, Show that A.B=A.C

Q 4/ If: $A = \begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$ $and\ B = \begin{bmatrix} -2 & 2 \\ 1 & 5 \end{bmatrix}$,show that: $tr(AB) \neq tr(A).\ tr(B)$.

Q 5/ Find the elements of Matrix $A=a_{ij}$ for size(3×4) ,where: $a_{ij} = 2i + j^2$

Q 6/ If A.B = B.A , Show that $(A.B)^6 = A^6 \cdot B^6$

Q 7/ If: $A = \begin{bmatrix} 6 & -1 \\ 2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ 0 & -2 \end{bmatrix}$,show that: $tr(A+B) = tr(A) + tr(B)$.

Q 8/ Let $A=\begin{bmatrix} 2 & 1 & 0 \\ 3 & 2 & 0 \\ 1 & 0 & 1 \end{bmatrix}$ and $B=\begin{bmatrix} 1 & 1 & 1 & 0 \\ 2 & 1 & 1 & 0 \\ 2 & 3 & 1 & 2 \end{bmatrix}$, find $(A\times B)$ by partition way.

Q 9/ If: $A=\begin{bmatrix} 5-3i & 2-i \\ 3+2i & 2-3i \end{bmatrix}$, $B=\begin{bmatrix} 1-3i & i \\ 5 & 2-3i \end{bmatrix}$, Show that: $\overline{(A+B)} = \overline{A}+\overline{B}$

Q 10/ Let $A=\begin{bmatrix} 6 & 5+i \\ 5-i & -5 \end{bmatrix}$ is A Hermitian matrix or not?