TAHIR MEHMOOD
M.Sc. Math
0345-6510779

M.C. Q's (Ist Year) ⑦

TAHIR MEHMOOD
M.Sc. Math
0345-6510779

Chapter: 3

1) If A has m rows and n Columns, then order of A is _____.
a- $m \times m$ b- $n \times n$ ✓c- $m \times n$ d- $n \times m$

2) A is Square matrix if _____
a- $m = 1$ b- $n = 1$ c- $m \neq n$ ✓d- $m = n$

3) $A = [a_{ij}]_n$ is diagonal if _____ for $i \neq j$
a- $a_{ij} = 1$ ✓b- $a_{ij} = 0$ c- $a_{ij} = K$ d- $a_{ij} \neq 0$

4) $\begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$ is _____ matrix.
a- Identity b- Unit ✓c- Scalar d- Zero.

5) $A = [a_{ij}]_n$ is identity matrix if _____ $i = j$
a- $a_{ij} = 0$ b- $a_{ij} = K$ ✓c- $a_{ij} = 1$ d- $a_{ij} \neq 0$

6) If A has order $m \times n$ then A^t has order _____.
✓a- $n \times m$ b- $n \times n$ c- $m \times n$ d- $m \times m$

7) If $A = [a_{ij}]$ then _____ $= [a_{ji}]$
a- A b- A^{-1} c✓ A^t d- $\bar{A}$

8) $(A+B)^t =$ _____.
a- $A+B$ b- A^t+B c- $A+B^t$ ✓d- A^t+B^t.

9) $(AB)^t =$ _____.
a- $A^t B$ b- AB^t c- $A^t B^t$ ✓d- $B^t A^t$

10) If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ then Adj A = _____.
a- $\begin{bmatrix} a & b \\ d & c \end{bmatrix}$ b- $\begin{bmatrix} d & b \\ c & a \end{bmatrix}$ c✓ $\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$ d- $\begin{bmatrix} d & c \\ b & a \end{bmatrix}$

11) If order of $A = m \times n$ and order of $B = p \times q$ then order of AB = _____
a- $m \times n$ b- $p \times q$ c- $m \times p$ ✓d- $m \times q$

12) If $A = [3]$ then det A = _____.
a✓ 3 b- 9 c- 0 d- 6

13) For A being non Singular, $A A^{-1} = A^{-1} A =$ _____.
a- 0 b✓ I c- A d- A^t

14) If $|A| = 0$ then A is _____.
a- Symmetric b- Skew Symmtric ✓c- Singular d- Non Singular.

15) For any matrix, $(A^t)^t =$ _____ ✓a- A b- A^t c- A^{-1} d- $\bar{A}^t$

16) If $|A| \neq 0$ then A is _____
a- Singular ✓b- Non Singular c- Symmetric d- Zero.

17) If $AX = B$ then $X =$ _____ for A being non-Singular.
a- AB ✓b- $A^{-1}B$ c- AB^{-1} d- BA^{-1}

18) _____ Law does not hold in matrix multiplication.
a- Closure b✓- Commutative c- Associative d- Distributive

19) AA^t and A^tA are _____ matrices.
a✓- Symmetric b- Hermitian c- Diagonal d- Triangular

20) $A = [a_{ij}]$ is upper triangular if _____.
a- $a_{ij}=0, i=j$ b- $a_{ij}=0, i \leq j$ ✓c- $a_{ij}=0, i>j$ d- $a_{ij}=0, i \neq j$

21) $A = [a_{ij}]$ is _____ if $a_{ij}=0$ for $i<j$.
a- Upper triangular ✓b- Lower triangular c- Symmetric d- Diagonal

22) $(A+B)^2 = A^2 + 2AB + B^2$ if _____.
a- $AB \neq BA$ b- $AB = -BA$ c✓- $AB = BA$ d- $A = B^t$

23) For any matrix $(A + A^t)^t =$ _____.
a- A b- A^t ✓c- $A + A^t$ d- $A + A^{tt}$

24) For A, B non-Singular matrices, $(AB)^{-1} =$ _____.
a- AB b- AB^{-1} c- $A^{-1}B^{-1}$ ✓d- $B^{-1}A^{-1}$

25) For A non Singular matrix, $(A^{-1})^{-1} =$ _____
a✓- A b- A^t c- A^{-1} d- $(A^t)^{-1}$

26) Cofactor of an element a_{ij} denoted by $A_{ij} =$ _____.
a- $(-1)^{ij} M_{ij}$ b- $(-1)^{i+j} M_{ji}$ ✓c- $(-1)^{i+j} M_{ij}$ d- $(-1)^{j+i} M_{ji}$

27) For any Square matrix, $|A| =$ _____.
a- $|-A|$ b✓- $|A^t|$ c- $|A^{-1}|$ d- $|\bar{A}|$

28) If $A_{3\times3}$ then $|kA| =$ ____ $|A|$.
a- k b- k^2 ✓c- k^3 d- k^9

29) $|A| =$ ____ if two rows or columns are identical.
a- 1 b✓- 0 c- -1 d- 10

30) $\det I =$ _____. a- 0 b✓- 1 c- -1 d- 2

31) $\begin{vmatrix} 1 & 2 & 3x \\ 2 & 3 & 6x \\ 3 & 5 & 9x \end{vmatrix} =$ _____ a- $3x$ b- 3 ✓c- 0 d- 1

32) If the matrix $A = \begin{bmatrix} 2 & -3 \\ 4 & k \end{bmatrix}$ is Singular then $k =$ _____.
a- 0 b- 12 c- -12 ✓d- -6

33) Additive inverse of A is ____. a- A b- A^{-1} c- $\frac{A}{2}$ d✓- $-A$

34) If A is Symmetric then _____.
a- $A^t = -A$ b✓- $A^t = A$ c- $\bar{A} = A$ d- $\bar{A}^t = A$

35- Order of $[1\ 2]$ is ____. a- 1×1 b✓- 1×2 c- 2×2 d- 2×1

36) A Square matrix A is Hermitian over $\mathbb{C}$ if _____.
a- $A^t = A$ b- $A^t = -A$ c- $\overline{A^t} = \overline{A}^t$ ✓d- $\overline{A}^t = A$

37) A is skew Symmetric if $A^t =$ _____.
a- A ✓b- $-A$ c- $\overline{A}$ d- $\overline{A}^t$

38) Identity matrix is always _____ matrix
✓a- Square b- Rectangular c- Row d- Column

39) Matrix with one row is called _____ matrix.
a- Square b- Rectangular ✓c- Row d- Column

40) Matrix of one column is called _____ matrix.
a- Square b- Rectangular c- Row ✓d- Column.

41) If $A = \begin{bmatrix} 1 & -2 & 3 \\ -2 & 3 & 1 \\ 4 & -3 & 2 \end{bmatrix}$ then $A_{33} =$ _____ ✓a- -1 b- 1 c- 7 d- -7

42) A homogeneous Linear Equation has _____ solution/solutions.
a- Unique b- Two c- Three ✓d- Infinite

43) For a Square matrix A, $(A^{-1})^t =$ _____.
a- A b- A^{-1} c- A^t ✓d- $(A^t)^{-1}$

44) _____ matrices are both upper and lower triangular matrices.
a- Square b- Symmetric c- Hermitian ✓d- Diagonal.

45) $ax + by = k$ is homogeneous if _____.
a✓- $k = 0$ b- $k \neq 0$ c- $a = 0$ d- $b = 0$

46) Solution $(0,0,0)$ for a System of Eq of 3×3 is _____ solution.
a- Unique b- Distinct ✓c- Trivial d- Non trivial

47) _____ $= \frac{Adj\,A}{|A|}$ for $|A| \neq 0$.
a- A^t b- A ✓c- A^{-1} d- $\overline{A}$.

48) System $Ax = b$ has non trivial Solution if _____
✓a- $|A| = 0$ b- $|A| \neq 0$ c- $|A^t| \neq 0$ d- $|\overline{A}| \neq 0$

49) Sum of two Symmetric matrices is _____.
✓a- Symmetric b- Hermitian c- Diagonal d- Skew Symmetric.

50) Inconsistent System has _____ solution.
✓a- No b- One c- Two d- Infinite.

51) $A - A^t$ is _____ matrix
a- Symmetric ✓b- Skew Symmetric c- Diagonal d- Hermitian.

52) $\overline{\overline{A}} =$ _____ over $\mathbb{C}$. ✓a- A b- $\overline{A}$ c- A^t d- $\overline{A}^t$