1) If $A = \begin{bmatrix} 3 - 2i & 5 + i \\ 1 + i & 2 \end{bmatrix}$ then $A^\theta = $ _____

2) If $A = \begin{bmatrix} 1 & -3 \\ 4 & 5 \end{bmatrix}$, the symmetric part of matrix A = _____

3) If $A = \begin{bmatrix} cos\theta & Sin\theta \\ -sin\theta & cos\theta \end{bmatrix}$ then $|A| = $ _____

4) If $A = \begin{bmatrix} 1 + i & 3 \\ 2 - i & 4 + 2i \end{bmatrix}$ then $\overline{A} = $ _____

5) The rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 2 & 2 \end{bmatrix}$

6) The rank of the matrix $\begin{bmatrix} k & -1 & 0 \\ 0 & k & -1 \\ -1 & 0 & k \end{bmatrix}$ is 2 for k=_____

7) The rank of 3X3 matrix whose elements are all 2 is _____

8) The maximum value of the rank of a $3X4$ matrix is _____

9) The solution of system of equations $\begin{bmatrix} 2 & 5 \\ -4 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ -30 \end{bmatrix}$ is _____

10) The product of two unitary matrices of equal order is _____

11) The number of solutions of system of equations $x + 2y - z = 0$, $2x + y + z = 0$, $x - 4y + 5z = 0$ is_____

12) If AX=B is a system of equations in three unknowns and the rank of A is 3 then the system equations will have

13) If the system of equations $x - 3y - 8z = 0, 3x + y - \lambda z = 0, 2x + 3y + 6z = 0$ possess a nontrivial   solution then $\lambda = $

14) If $A = \begin{bmatrix} 3 & a & b \\ -2 & 2 & 4 \\ 7 & 4 & 5 \end{bmatrix}$ is symmetric then (a,b) =_____

15) The system of equations $x + y + z = 3, x + 2y + 3z = 4, x + 4y + 9z = 6$ will have _____

16) The Eigen values of $\begin{bmatrix} 6 & -3 \\ 2 & 1 \end{bmatrix}$ are

17) The Eigen values of $\begin{bmatrix} 5 & 2 \\ -1 & 2 \end{bmatrix}$ are 3 and 4 then the eigen vectors are

18) The Necessary and sufficient condition for diagonalization of a matrix

19) If $A = \begin{bmatrix} 1 & 0 & 0 \\ -2 & 3 & 0 \\ 1 & 1 & 5 \end{bmatrix}$ then eigen values of $A^{-1} = $ _____

20) The symmetric matrix corresponding to the quadratic form $8x^2 + 2y^2 + 3z^2 - 12xy$

21) The Quadratic form corresponding to the matrix $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 1 & 3 \\ 2 & 3 & 2 \end{bmatrix}$

22) The Nature of the Quadratic form $2x^2 + 2y^2 + 2z^2$ is

23) The matrix of the quadratic form $2xy + 2yz + 2zx$

24) If The eigen value of matrix A is 2 then eigen value of The matrix $A^2 + 2A + 3I$ is _____

25) If A= $\begin{bmatrix} 2 & 3 & 5 \\ 0 & -4 & 7 \\ 0 & 0 & 2 \end{bmatrix}$ $then\ eigen\ values\ of\ A\ are$ _____

26) If A is a $2X2$ matrix whose trace is 5 and $|A| = 6$ then eigen values of A are _____

27) The Eigen values of A are (2,3,4) then the Eigen values of 3A are

_____

28) If the eigen values of matrix A are 1,3,4 then trace of A = _____

29) The characteristic equation of $\begin{bmatrix} 1 & 3 \\ -1 & 2 \end{bmatrix}$ is _____

30) The nature of the quadratic form $x^2 + 5y^2 + 6z^2$ is _____

31) The determinant of a $2X2$ matrix is 50. If one eigen value is 5, the other eigen value is

_____

32) Write the quadratic form corresponding to the matrix $\begin{bmatrix} 1 & -1 & 0 \\ -1 & 2 & 3 \\ 0 & 3 & 5 \end{bmatrix}$ is _____

33) The nature of the quadratic form $2x^2 - 3y^2 + z^2$ is _____

34) If A Is an orthogonal matrix then A^{-1} is _____

A)symmetric	B) skew-symmetric	C)orthogonal	D) Hermitian

35) If the Eigen values of A are 2 ,-1,0 Then A is _____

A) Symmetric	B)singular	C) Non-singular	D) Can't Determine

36) The Diagonal elements of Skew-Hermitian matrix are _____

A) Zero	B) complex number	C)Purely imaginary or zero	D) real

37) If A is an orthogonal matrix then $|A| =$ _____

A) 2	B) ± 1	C) 0	D) Can't determine

38) If $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ then $A^2 =$ _____

A) 4A	B) $4A - 5I$	C) $5I$	D) $4A + 5I$

39) If A $= \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ then $A^3 =$

A) $2A^2 + 5A$	B) $4A^2 + 2A$	C)$2A^2 + 5A$	D)$5A^2 + 2A$

subject: MC **Important quiz questions**

1) If $A = \begin{bmatrix} 3 - 2i & 5 + i \\ 1 + i & 2 \end{bmatrix}$ then $A^\theta = \begin{bmatrix} 3 + 2i & 1 - i \\ 5 - i & 2 \end{bmatrix}$.

2) If $A = \begin{bmatrix} 1 & -3 \\ 4 & 5 \end{bmatrix}$, the symmetric part of matrix $A = \begin{bmatrix} 1 & \frac{1}{2} \\ \frac{1}{2} & 5 \end{bmatrix}$.

3) If $A = \begin{bmatrix} cos\theta & Sin\theta \\ -sin\theta & cos\theta \end{bmatrix}$ then $|A| = 1$.

4) If $A = \begin{bmatrix} 1 + i & 3 \\ 2 - i & 4 + 2i \end{bmatrix}$ then $A = \begin{bmatrix} 1 - i & 3 \\ 2 + i & 4 - 2i \end{bmatrix}$.

5) The rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 2 & 2 \end{bmatrix}$ is **3**.

6) The rank of the matrix $\begin{bmatrix} k & -1 & 0 \\ 0 & k & -1 \\ -1 & 0 & k \end{bmatrix}$ is 2 for k=**1**.

7) The rank of 3X3 matrix whose elements are all 2 is **1**.

8) The maximum value of the rank of a $3X4$ matrix is **3**.

9) The solution of system of equations $\begin{bmatrix} 2 & 5 \\ -4 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ -30 \end{bmatrix}$ is $\begin{array}{l} 2x + 5y = 2, \\ -4x + 3y = -30 \end{array}$.

10) The product of two unitary matrices of equal order is **unitary matrices**.

11) The number of solutions of system of equations $x + 2y - z = 0$, $2x + y + z = 0$, $x - 4y + 5z = 0$ is **Infinite number of Solutions.**

12) If AX=B is a system of equations in three unknowns and the rank of A is 3 then the system equations will have **Unique Solution**.

13) If the system of equations $x - 3y - 8z = 0, 3x + y - \lambda z = 0, 2x + 3y + 6z = 0$ possess a nontrivial solution then λ = **18**.

14) **If** $A = \begin{bmatrix} 3 & a & b \\ -2 & 2 & 4 \\ 7 & 4 & 5 \end{bmatrix}$ **is symmetric then (a,b) = (-2,7).**

15) The system of equations $x + y + z = 3, x + 2y + 3z = 4, x + 4y + 9z = 6$ will have **Unique Solution.**

16) The Eigen values of $\begin{bmatrix} 6 & -3 \\ 2 & 1 \end{bmatrix}$ are **4,3**.

17) The Eigen values of $\begin{bmatrix} 5 & 2 \\ -1 & 2 \end{bmatrix}$ are 3 and 4 then the eigen vectors are $\begin{bmatrix} -1 \\ 1 \end{bmatrix} \begin{bmatrix} -2 \\ 1 \end{bmatrix}$.

18) The Necessary and sufficient condition for diagonalization of a matrix **is non singular**.

19) If $A = \begin{bmatrix} 1 & 0 & 0 \\ -2 & 3 & 0 \\ 1 & 1 & 5 \end{bmatrix}$ then eigen values of A^{-1} = **1,1/3,1/5.**

20) The symmetric matrix corresponding to the quadratic form $8x^2 + 2y^2 + 3z^2 - 12xy$ = $\begin{bmatrix} 8 & -6 & 0 \\ -6 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$.

21) The Quadratic form corresponding to the matrix $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 1 & 3 \\ 2 & 3 & 2 \end{bmatrix}$ is **2x-1y+2z=0, 1y+3z=0, 2x+3y+2z=0.**

22) The Nature of the Quadratic form $2x^2 + 2y^2 + 2z^2$ is **Positive Definite**.

23) The matrix of the quadratic form $2xy + 2yz + 2zx$ is $\begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$.

24) If The eigen value of matrix A is 2 then eigen value of The matrix $A^2 + 2A + 3I$ *is* **11**.

25) If A= $\begin{bmatrix} 2 & 3 & 5 \\ 0 & -4 & 7 \\ 0 & 0 & 2 \end{bmatrix}$ *then eigen values of A are* **2,-4,2**.

26) If A is a $2X2$ matrix whose trace is 5 and $|A| = 6$ then eigen values of A are **2,3**.

27) The Eigen values of A are (2,3,4) then the Eigen values of 3A are **6,9,12**.

28) If the eigen values of matrix A are 1,3,4 then trace of A = **8**.

29) The characteristic equation of $\begin{bmatrix} 1 & 3 \\ -1 & 2 \end{bmatrix}$ is **x² -3x + 5**.

30) The nature of the quadratic form $x^2 + 5y^2 + 6z^2$ is **Positive Definite.**

31) The determinant of a $2X2$ matrix is 50. If one eigen value is 5, the other eigen value is **10**.

32) Write the quadratic form corresponding to the matrix $\begin{bmatrix} 1 & -1 & 0 \\ -1 & 2 & 3 \\ 0 & 3 & 5 \end{bmatrix}$ is **x²+2y²+5z²-2xy+6yz.**

33) The nature of the quadratic form $2x^2 - 3y^2 + z^2$ is **Indefinite.**

34) If A Is an orthogonal matrix then A^{-1} is **Aᵀ.**

A)symmetric	B) skew-symmetric	C)orthogonal	D) Hermitian

35) If the Eigen values of A are 2 ,-1,0 Then A is **D**.

A) Symmetric	B)singular	C) Non-singular	D) Can't Determine

36) The Diagonal elements of Skew-Hermitian matrix are **B**.

A) Zero	B) complex number	C)Purely imaginary or zero	D) real

37) If A is an orthogonal matrix then $|A|$ =**B**.

A) 2	B) ± 1	C) 0	D) Can't determine

38) If $A = [1\ 4\ 2\ 3\ ]$ then A^2 =**D**.

A) 4A	B) $4A - 5I$	C) 5I	D) $4A + 5I$

39) If A =$[1\ 2\ 3\ 4\ ]$ then $A^3 =$

A) $2A^2 + 5A$	B) $4A^2 + 2A$	C)$2A^2 + 5A$	D)$5A^2 + 2A$