Q. No.	The Bodwad Sarvajanik Co-op Education Society Ltd, Bodwad **Arts, Commerce & Science College, Bodwad, Dist.-Jalgaon** **FYBSc Sem1 Mathematics Paper I** **MTH 101 Matrix Algebra** **Question Bank**	Ans
1)	If $A = [a_{ij}]$ be a square matrix of order 3 then cofactor of $a_{13} = \ldots\ldots.$ (A) $A_{13} = M_{31}$ (B) $A_{13} = M_{13}$ (C) $A_{13} = -M_{13}$ (D) None of these	**B**
2)	If $A = [a_{ij}]$ be a square matrix of order 3 then cofactor of $a_{23} = \ldots\ldots..$ (A) $A_{23} = M_{23}$ (B) $A_{23} = M_{32}$ (C) $A_{23} = -M_{23}$ (D) None of these	**C**
3)	If A is square matrix of order n then $A.adjA = \ldots\ldots..$ (A) $\|A\|$ (B) $\|A\|I$ (C) I (D) None of these	**B**
4)	If A is square matrix of order n then $adjA = \ldots\ldots..$ (A) $\|A\|A^{-1}$ (B) $\|A\|$ (C) A^{-1} (D) None of these	**A**
5)	If A, B are non-singular square matrices of the same order n then $adj(AB) = \ldots\ldots..$ (A) $adjA.adjB$ (B) $adjBA$ (C) $adjB.adjA$ (D) None of these	**C**
6)	If A is square matrix of order n then $adj(adjA) = \ldots\ldots..$ (A) $\|A\|^{n-1}A$ (B) $\|A\|^{n-2}A$ (C) $\|A\|^{n-2}I$ (D) None of these	**B**
7)	If A, B are non-singular square matrices of the same order then $(AB)^{-1} = \ldots\ldots\ldots$ (A) $A^{-1}B^{-1}$ (B) $B^{-1}A^{-1}$ (C) $B.A$ (D) None of these	**B**

8)	Let A be a square matrix of order n. If there exist a matrix B such that $AB = BA = I$ then (A) B is inverse of A (B) $A = B$ (C) B is not inverse of A (D) None of these	**A**
9)	If A is non singular matrix then $A^{-1} =$ ……. (A) $adjA$ (B) $\|A\|adjA$ (C) $\frac{1}{\|A\|}adjA$ (D) None of these	**C**
10)	If A is non singular matrix then $\|A^{-1}\| =$ …….. (A) $\|A\|$ (B) $-\|A\|$ (C) $\frac{1}{\|A\|}$ (D) None of these	**C**
11)	If $A = \begin{bmatrix} 2 & -3 \\ 1 & 5 \end{bmatrix}$ then $A^{-1} =$ ………. (A) $\frac{1}{13}\begin{bmatrix} 5 & 3 \\ -1 & 2 \end{bmatrix}$ (B) $\frac{1}{7}\begin{bmatrix} 5 & 3 \\ -1 & 2 \end{bmatrix}$ (C) $\frac{1}{13}\begin{bmatrix} 5 & -3 \\ 1 & 2 \end{bmatrix}$ (D) None of these	**A**
12)	If $A = \begin{bmatrix} 3 & 1 \\ 4 & -2 \end{bmatrix}$ then $A^{-1} =$ ……. (A) $\frac{1}{10}\begin{bmatrix} -2 & -1 \\ -4 & 3 \end{bmatrix}$ (B) $\frac{1}{-10}\begin{bmatrix} -2 & -1 \\ -4 & 3 \end{bmatrix}$ (C) $\frac{1}{-10}\begin{bmatrix} -2 & 1 \\ 4 & 3 \end{bmatrix}$ (D) None of these	**B**
13)	If A is square matrix of order 3 and $\|A\| = 4$ then $A.adjA =$ ……. (A) 4 (B) $4I$ (C) I (D) None of these	**B**
14)	If A is square matrix of order 5 and $\|A\| = 2$ then $\|adjA\| =$ ……. (A) 32 (B) 8 (C) 16 (D) None of these	**C**
15)	If A is singular matrix then $A.\|adjA\| =$ ……. (A) I (B) 0 (C) A (D) None of these	**B**

16)	A system of linear equations $AX = B$ is said to be homogeneous. If B is ……. (A) Null Matrix (B) Non zero matrix (C) Singular matrix (D) None of these	**A**
17)	A system of linear equations $AX = B$ is said to be non-homogeneous. If B is ……. (B) Null Matrix (B) Non zero matrix (C) Singular matrix (D) None of these	**B**
18)	A system of linear equations $AX = B$ is said to be consistent if system has ……. (A) No solution (B) Unique solution (C) Solution (D) None of these	**C**
19)	A system of linear equations $AX = B$ is said to be inconsistent if system has ……. (A) No solution (B) Unique solution (C) Solution (D) None of these	**A**
20)	A system of linear equations $AX = B$ is said to be consistent if system has ……. (A) $\rho(A) \neq \rho(A,B)$ (B) $\rho(A) = \rho(A,B)$ (C) $\rho(A) < \rho(A,B)$ (D) None of these	**B**
21)	A system of linear equations $AX = B$ is said to be inconsistent if system has ……. (A) $\rho(A) \neq \rho(A,B)$ (B) $\rho(A) = \rho(A,B)$ (C) $\rho(A) < \rho(A,B)$ (D) None of these	**A**
22)	A system of linear equations $AX = B$ of n unknowns such that $\rho(A) = \rho(A,B) = n$ then system has …….. solution. (A) No (B) Unique (C) Infinite (D) None of these	**B**
23)	A system of linear equations $AX = B$ of n unknowns such that $\rho(A) = \rho(A,B) < n$ then system has …….. solution. (A) No (B) Unique (C) Infinite (D) None of these	**C**

24)	A homogeneous system of three linear equations in three unknowns has a unique solution if ……. (A) $\|A\| = 0$ (B) $\|A\| \neq 0$ (C) $\|A\| = 1$ (D) None of these	**B**
25)	A homogeneous system of three linear equations in three unknowns has a trivial solution if ……... (A) $\|A\| = 0$ (B) $\|A\| \neq 0$ (C) $\|A\| = 1$ (D) None of these	**B**
26)	A homogeneous system of three linear equations in three unknowns has a infinite number of solution if ……... (A) $\|A\| = 0$ (B) $\|A\| \neq 0$ (C) $\|A\| = 1$ (D) None of these	**A**
27)	A homogeneous system of three linear equations in three unknowns has a non trivial solution if ……... (A) $\|A\| = 0$ (B) $\|A\| \neq 0$ (C) $\|A\| = 1$ (D) None of these	**A**
28)	If A is non singular matrix then solution of system of linear equations $AX = B$ is given by ……… (A) $X = BA^{-1}$ (B) $X = AB$ (C) $X = A^{-1}B$ (D) None of these	**C**
29)	If A is an orthogonal matrix if $\|A\| = \ldots\ldots$ (A) I (B) 0 (C) ± 1 (D) None of these	**C**
30)	If A is an orthogonal matrix then $A^{-1} = \ldots\ldots$ (A) A (B) A' (C) I (D) None of these	**B**
31)	The product of two orthogonal matrices is …….. (A) Orthogonal (B) Not orthogonal (C) Proper orthogonal (D) None of these	**A**

32)	If $A = \begin{bmatrix} cos\theta & -sin\theta \\ sin\theta & cos\theta \end{bmatrix}$ then A is ……. (A) Improper orthogonal (B) Proper orthogonal (C) Not orthogonal (D) None of these	**B**
33)	If $A = \begin{bmatrix} cos\theta & sin\theta \\ sin\theta & -cos\theta \end{bmatrix}$ then A is ……. (A) Improper orthogonal (B) Proper orthogonal (C) Not orthogonal (D) None of these	**A**
34)	Let A be a nonzero square matrix and X be a nonzero (vector) column matrix. If there exist a number λ such that $AX = \lambda X$ then λ is called ………. of the matrix A. (A) Eigen vector (B) Eigen value (C) Not eigen value (D) None of these	**B**
35)	Let A be a nonzero square matrix and X be a nonzero (vector) column matrix. If there exist a number λ such that $AX = \lambda X$ then X is called ……… of the matrix A. (A) Eigen vector (B) Eigen value (C) Not eigen value (D) None of these	**A**
36)	Let A be a nonzero square matrix then characteristic polynomial of A is …….. (A) $\lvert A - \lambda I \rvert = 1$ (B) $\lvert A - \lambda I \rvert = 0$ (C) $\lvert A - \lambda I \rvert$ (D) $(A - \lambda I)$	**C**
37)	Let A be a nonzero square matrix then characteristic Equation of A is …….. (A) $(A - \lambda I) = 0$ (B) $\lvert A - \lambda I \rvert = 0$ (C) $\lvert A - \lambda I \rvert$ (D) None of these	**B**
38)	Let A is non zero square matrix k is a non zero scalar. If λ is eigen value of A then eigen value of kA is …….. (A) $k\lambda$ (B) λ (C) $\frac{k}{\lambda}$ (D) None of these	**A**
39)	If λ is an eigen value of a non singular matrix A then an eigen value of A^m is …….. (A) λ (B) λ^m (C) 2λ (D) None of these	**B**

40)	If λ is an eigen value of a non singular matrix A then an eigen value of A^{-1} is …….. (A) λ (B) $\frac{1}{\lambda}$ (C) $-\lambda$ (D) None of these	**B**
41)	If λ is an eigen value of a non singular matrix A then an eigen value of $adjA$ is …….. (A) $\frac{\|A\|}{\lambda}$ (B) $\lambda\|A\|$ (C) $\frac{\lambda}{\|A\|}$ (D) None of these	**A**
42)	If λ is an eigen value of a non singular matrix A then an eigen value of A^2 is …….. (B) λ (B) λ^2 (C) 2λ (D) None of these	**B**
43)	If $A = \begin{bmatrix} 2 & 2 \\ 1 & 3 \end{bmatrix}$ then the characteristic polynomial of A is …….. (A) $\lambda^2 - 5\lambda + 8$ (B) $\lambda^2 - 5\lambda + 4$ (C) 2λ (D) None of these	**B**
44)	If origin is shifted to the point (h, k) the direction of axes remains same then translation of point (x, y) is ……. (A) $(x - h, y - k)$ (B) $(x + h, y + k)$ (C) (x, y) (D) None of these	**B**
45)	The translation of the point (x, y) by h units in the x-direction and k units in y direction is …… (A) $(x + h, y + k)$ (B) $(x - h, y - k)$ (C) (x, y) (D) None of these	**A**
46)	The translation of the point $(2,3)$ by 3 units in the x-direction and 4 units in y direction is …… (A) $(-5, 7)$ (B) $(7, 5)$ (C) $(5, 7)$ (D) None of these	**C**
47)	The translation of the point $(3, -2)$ by 4 units in the x-direction and 6 units in y direction is …… (A) $(7, 4)$ (B) $(4, 7)$ (C) $(7, 8)$ (D) None of these	**A**

48)	If origin is shifted to the point (h, k) the direction of axes remains same then translation matrix is ……… (A) $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\h & k & 1\end{bmatrix}$ (B) $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\h & -k & 1\end{bmatrix}$ (C) $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\-h & -k & 1\end{bmatrix}$ (D) None of these	**A**
49)	The translation matrix when a point translates by 4 units in the x-direction and 3 units in y direction is …… (A) $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\-4 & -3 & 1\end{bmatrix}$ (B) $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\4 & 3 & 1\end{bmatrix}$ (C) $\begin{bmatrix}4 & 0 & 0\\0 & 3 & 0\\1 & 1 & 1\end{bmatrix}$ (D) None of these	**B**
50)	The rotation matrix when rotate the point (x, y) by angle θ in counter clockwise direction is …….. (A) $\begin{bmatrix}cos\theta & -sin\theta\\sin\theta & cos\theta\end{bmatrix}$ (B) $\begin{bmatrix}cos\theta & sin\theta\\-sin\theta & cos\theta\end{bmatrix}$ (C) $\begin{bmatrix}cos\theta & sin\theta\\sin\theta & -cos\theta\end{bmatrix}$ (D) None of these	**B**
51)	The rotation matrix when rotate the point (x, y) by angle θ in anticlockwise direction is …….. (A) $\begin{bmatrix}cos\theta & -sin\theta\\sin\theta & cos\theta\end{bmatrix}$ (B) $\begin{bmatrix}cos\theta & sin\theta\\-sin\theta & cos\theta\end{bmatrix}$ (C) $\begin{bmatrix}cos\theta & sin\theta\\sin\theta & -cos\theta\end{bmatrix}$ (D) None of these	**A**
52)	The rotation matrix when rotate the point (x, y) by angle $\frac{\pi}{2}$ in counter clockwise direction is …….. (A) $\begin{bmatrix}0 & 1\\-1 & 0\end{bmatrix}$ (B) $\begin{bmatrix}0 & 1\\1 & 0\end{bmatrix}$ (C) $\begin{bmatrix}0 & -1\\-1 & 0\end{bmatrix}$ (D) None of these	**A**
53)	The rotation matrix when rotate the point (x, y) by angle $\frac{\pi}{2}$ in anticlockwise clockwise direction is …….. (B) $\begin{bmatrix}0 & -1\\1 & 0\end{bmatrix}$ (B) $\begin{bmatrix}0 & 1\\1 & 0\end{bmatrix}$ (C) $\begin{bmatrix}0 & -1\\-1 & 0\end{bmatrix}$ (D) None of these	**A**
54)	The rotation matrix when rotate the point (x, y) by angle π in counter clockwise direction is …….. (A) $\begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}$ (B) $\begin{bmatrix}-1 & 0\\0 & 1\end{bmatrix}$ (C) $\begin{bmatrix}-1 & 0\\0 & -1\end{bmatrix}$ (D) None of these	**C**

55)	The rotation matrix when rotate the triangle $A(x,y), B(x,y), C(x,y)$ by an angle θ in counter clockwise direction is ……. (A) $\begin{bmatrix} cos\theta & sin\theta & 0 \\ -sin\theta & cos\theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} cos\theta & -sin\theta & 0 \\ sin\theta & cos\theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (C) $\begin{bmatrix} -cos\theta & sin\theta & 0 \\ sin\theta & -cos\theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (D) None of these	**A**
56)	The rotation matrix when rotate the triangle $A(x,y), B(x,y), C(x,y)$ by an angle $\frac{\pi}{2}$ in counter clockwise direction is ……. (A) $\begin{bmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 0 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (C) $\begin{bmatrix} 0 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (D) None of these	**B**
57)	The reflection matrix when reflect point A about the line $y = x$ is ……. (A) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ (B) $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$ (C) $\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$ (D) None of these	**A**
58)	The reflection matrix when reflect point A about the line $x - axis$ is …… (A) $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ (C) $\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$ (D) None of these	**B**
60	Choose the correct option .reflecion of the point P(1,2) with respect to X axis is… (A) $(1,-2)$ (B) $(4,7)$ (C) $(7,8)$ (D) None of these	**A**
61	Choose the correct option .reflecion of the point P(1,2) with respect to Y axis is… (B) $(-1,2)$ (B) $(4,7)$ (C) $(7,8)$ (D) None of these	**A**
62	Choose the correct option .reflecion of the point P(6,2) with respect to X axis is… (A) $(6,-2)$ (B) $(4,7)$ (C) $(7,8)$ (D) None of these	**A**
63	Choose the correct option .reflecion of the point P(1,12) with respect to Y axis is… (A) $(-1,12)$ (B) $(4,7)$ (C) $(7,8)$ (D) None of these	**A**
64	Meaning of S_x=S_y>1 is … (A) Uniform Contraction (B)Uniform Magnification (C)No Change (D) None of these	**B**
65	Meaning of S_x=S_y<1 is … (A) Uniform Contraction (B)Uniform Magnification (C)No Change (D) None of these	**A**
66	Meaning of S_x=S_y=1 is … (B) Uniform Contraction (B)Uniform Magnification (C)No Change (D) None of these	**A**
67	What will be the transformation matrix if we want to enlarge the entire figure by 3 times (A) $\begin{bmatrix} 3 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 0 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ (C) $\begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (D) None of these	**C**
68	What will be the transformation matrix if we want to enlarge the entire figure by 2 times	**C**

	(A) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}2&0&0\\0&2&0\\0&0&1\end{bmatrix}$ (D) None of these	
69	What will be the transformation matrix if we want to the contract picture by 50% of its size (A) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}1/2&0&0\\0&1/2&0\\0&0&1\end{bmatrix}$ (D) None of these	**C**
70	What will be the transformation matrix if we want to the contract picture by 20% of its size (A) $\begin{bmatrix}1/5&0&0\\0&1/5&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}1/2&0&0\\0&1/2&0\\0&0&1\end{bmatrix}$ (D) None of these	**A**
71	What will be the transformation matrix if we want to the contract picture by 25% of its size (B) $\begin{bmatrix}1/4&0&0\\0&1/4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}1/2&0&0\\0&1/2&0\\0&0&1\end{bmatrix}$ (D) None of these	**A**
72	What will be the transformation matrix if we want to the contract picture by 10% of its size (C) $\begin{bmatrix}1/10&0&0\\0&1/10&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}1/2&0&0\\0&1/2&0\\0&0&1\end{bmatrix}$ (D) None of these	**A**
73	What will be the transformation matrix if we want to the contract picture by half of its size (B) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}1/2&0&0\\0&1/2&0\\0&0&1\end{bmatrix}$ (D) None of these	**C**
74	What will be the transformation matrix if we want to enlarge the entire figure by double of its size (B) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}2&0&0\\0&2&0\\0&0&1\end{bmatrix}$ (D) None of these	**C**
75	What will be the transformation matrix if we want to enlarge the entire figure by 5 times (C) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}0&1&0\\-1&0&0\\0&0&3\end{bmatrix}$ (C) $\begin{bmatrix}5&0&0\\0&5&0\\0&0&1\end{bmatrix}$ (D) None of these	**C**
76	What will be the x shear transformation matrix if x shear parameter b=2 (A) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}1&0&0\\2&1&0\\0&0&1\end{bmatrix}$ (C) $\begin{bmatrix}5&0&0\\0&5&0\\0&0&1\end{bmatrix}$ (D) None of these	**B**
77	What will be the x shear transformation matrix if x shear parameter b=12 (A) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}1&0&0\\12&1&0\\0&0&1\end{bmatrix}$ (C) $\begin{bmatrix}5&0&0\\0&5&0\\0&0&1\end{bmatrix}$ (D) None of these	**B**
78	What will be the x shear transformation matrix if x shear parameter b=8 (A) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}1&0&0\\8&1&0\\0&0&1\end{bmatrix}$ (C) $\begin{bmatrix}5&0&0\\0&5&0\\0&0&1\end{bmatrix}$ (D) None of these	**B**
79	What will be the y shear transformation matrix if y shear parameter a=2 (A) $\begin{bmatrix}3&0&0\\0&4&0\\0&0&1\end{bmatrix}$ (B) $\begin{bmatrix}1&2&0\\0&1&0\\0&0&1\end{bmatrix}$ (C) $\begin{bmatrix}5&0&0\\0&5&0\\0&0&1\end{bmatrix}$ (D) None of these	**B**

80	What will be the y shear transformation matrix if y shear parameter a=3 (A) $\begin{bmatrix} 3 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 2 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (C) $\begin{bmatrix} 1 & 3 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (D) None of these	**C**
81	What will be the y shear transformation matrix if y shear parameter a=7 (A) $\begin{bmatrix} 3 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} 1 & 7 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (C) $\begin{bmatrix} 5 & 0 & 0 \\ 0 & 5 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (D) None of these	**B**
82	If $A = \begin{bmatrix} 6 & 2 \\ 0 & 3 \end{bmatrix}$ then the characteristic polynomial of A is …….. (A) $\lambda^2 - 5\lambda + 8$ (B) $\lambda^2 - 9\lambda + 18$ (C) 2λ (D) None of these	**B**
83	If $A = \begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$ then the characteristic polynomial of A is …….. (B) $\lambda^2 - 5\lambda + 8$ (B) $\lambda^2 - 4\lambda + 3$ (C) 2λ (D) None of these	**B**
84	If $A = \begin{bmatrix} 6 & 2 \\ 0 & 3 \end{bmatrix}$ then the characteristic equation of A is …….. (C) $\lambda^2 - 9\lambda + 18 = 0$ (B) $\lambda^2 - 9\lambda + 18$ (C) 2λ (D) None of these	**A**
85	If $A = \begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$ then the characteristic equation of A is …….. (D) $\lambda^2 - 4\lambda + 3 = 0$ (B) $\lambda^2 - 4\lambda + 3$ (C) 2λ (D) None of these	**A**
86	If $A = \begin{bmatrix} 6 & 12 \\ 0 & 3 \end{bmatrix}$ then the characteristic equation of A is …….. (A) $\lambda^2 - 9\lambda + 18 = 0$ (B) $\lambda^2 - 9\lambda + 18$ (C) 2λ (D) None of these	**A**
87	If $A = \begin{bmatrix} 2 & 2 \\ 0 & 4 \end{bmatrix}$ then the characteristic equation of A is …….. (A) $\lambda^2 - 6\lambda + 8 = 0$ (B) $\lambda^2 - 9\lambda + 18$ (C) 2λ (D) None of these	**A**
88	If $A = \begin{bmatrix} 2 & 6 \\ 0 & 4 \end{bmatrix}$ then the characteristic equation of A is …….. (B) $\lambda^2 - 6\lambda + 18 = 0$ (B) $\lambda^2 - 6\lambda + 8 = 0$ (C) 2λ (D) None of these	**B**
89	If $A = \begin{bmatrix} 2 & 5 \\ 0 & 4 \end{bmatrix}$ then the characteristic equation of A is …….. (C) $\lambda^2 - 6\lambda + 8 = 0$ (B) $\lambda^2 - 9\lambda + 18$ (C) 2λ (D) None of these	**A**
90	If $A = \begin{bmatrix} 1 & 2 \\ 0 & 4 \end{bmatrix}$ then the characteristic equation of A is …….. (D) $\lambda^2 - 6\lambda + 8 = 0$ (B) $\lambda^2 - 5\lambda + 4 = 0$ (C) 2λ (D) None of these	**B**
91	True or False $A^{-1} = \frac{1}{\lvert A \rvert}$adj A A)True B)False	**A**
92	True or False The Eigen values of A and A' (i.e. Transpose of A) are equal. A)True B)False	**A**

93	True or False .Sum of the all eigen Values of square matrix A is its trace (i.e. sum of principal Diagonal elements) A)True B)False	**A**
94	True or False.Every square matrix satisfies its characteristic equation A)False B)True	**B**
95	If $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ then the characteristic equation of A is …….. (A) $\lambda^2 + 8 = 0$ (B) $\lambda^2 - 5\lambda + 4 = 0$ (C) $\lambda^2 - 4\lambda - 5 = 0$ (D) None of these	**C**
96	If $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ then the characteristic Polynomial of A is …….. (A) $\lambda^2 - 4\lambda - 5$ (B) $\lambda^2 - 5\lambda + 4 = 0$ (C) $\lambda^2 - 4\lambda - 5 = 0$ (D) None of these	**A**
97	True or False A orthogonal Matrix A is called improper orthogonal if $\|A\| = -1$ A)True B)False	**A**
98	True or False A orthogonal Matrix A is called improper orthogonal if $\|A\| = 0$ A)True B)False	**B**
99	True or False $\varrho(AB) \geq min\{\varrho(A), \varrho(A)\}$ A)True B)False	**B**
100	True or False $\varrho(AB) \geq max\{\varrho(A), \varrho(A)\}$ A)True B)False	**B**