

CHAPTER-3
MATRICES
01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	In a certain city there are 30 colleges. Each college has 15 peons, 6 clerks, 1 typist and 1 section officer. Express the given information as a column matrix. A) $\begin{bmatrix} 15 \\ 1 \\ 1 \\ 6 \end{bmatrix}$ B) $\begin{bmatrix} 15 \\ 6 \\ 1 \\ 1 \end{bmatrix}$ C) $\begin{bmatrix} 6 \\ 15 \\ 1 \\ 1 \end{bmatrix}$ D) $\begin{bmatrix} 1 \\ 1 \\ 6 \\ 15 \end{bmatrix}$	1
2.	If $A = \{a_{ij}\}$ is a square matrix of order 2 such that $a_{ij} = \begin{cases} 1, & \text{when } i \neq j \\ 0, & \text{when } i = j \end{cases}$ A) $\begin{pmatrix} 1 & 0 \\ 1 & 0 \end{pmatrix}$ B) $\begin{pmatrix} 1 & 1 \\ 0 & 0 \end{pmatrix}$ C) $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ D) $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$	1
3.	Let A be a skew symmetric matrix of order 3. If $ A =x$, then $(2023)^x$ is A) 2023 B) $1/2023$ C) 2023^2 D) 1	1
4.	If a matrix $A = [1 \ 2 \ 3]$, then the matrix AA^T is : A) 14 B) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ C) $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{bmatrix}$ D) [14]	1
5.	A and B are two matrices of order 3×2 and 3×2 then the order of the matrix AB^t . A) 3×3 B) 2×2 C) 2×3 D) Not define	1
6.	If for a square matrix A, $A^2 - 3A + I = O$ and $A^{-1} = xA + yI$, then the value of $x+y$ is : A) -2 B) 2 C) 3 D) -3	1
7.	If $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$, then A^{2023} is equal to A) $\begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$ B) $\begin{bmatrix} 0 & 2023 \\ 0 & 0 \end{bmatrix}$ C) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ D) $\begin{bmatrix} 2023 & 0 \\ 0 & 2023 \end{bmatrix}$	1
8.	Number of symmetric matrices of order 3×3 with each entry 1 or -1 is A) 256 B) 64 C) 512 D) 4	1
9.	If $\begin{bmatrix} 1 & 2 & 1 \\ 2 & 3 & 1 \\ 3 & a & 1 \end{bmatrix}$ is a non singular matrix $a \in A$, then the set A is A) R B) $\{0\}$ C) $\{4\}$ D) $R - \{4\}$	1
10.	If $\begin{bmatrix} 2 & 0 \\ 5 & 4 \end{bmatrix} = P + Q$, where P is a symmetric and Q is a skew symmetric matrix, then Q is equal to A) $\begin{bmatrix} 2 & 5/2 \\ 5/2 & 4 \end{bmatrix}$ B) $\begin{bmatrix} 0 & -5/2 \\ 5/2 & 0 \end{bmatrix}$ C) $\begin{bmatrix} 0 & 5/2 \\ -5/2 & 0 \end{bmatrix}$ D) $\begin{bmatrix} 2 & -5/2 \\ 5/2 & 4 \end{bmatrix}$	1
11.	If $O(A)=2 \times 3$, $O(B)=3 \times 2$, $O(C)=3 \times 3$ then which of the following is not defined? i) $CB+A'$ ii) $C(A+B)'$ iii) BAC iv) $C(A+B')$	1

12.	If $A = \begin{bmatrix} 1 & 2 & 3 \\ 1 & 4 & 9 \\ 1 & 8 & 27 \end{bmatrix}$ what is the value of $ \text{adj}A $? i)36 ii)72 iii)144 iv) none	1
13.	The matrix A has x rows and (x+5) columns and matrix B has y rows and (11-y) column. Both AB and BA exist then the value of x and y are- i) 8,3 ii)3,4 iii)3,8 iv)8,8	1
14.	If the matrix $\begin{bmatrix} 1 & 3 & a+2 \\ 2 & 4 & 8 \\ 3 & 5 & 10 \end{bmatrix}$ is singular then what is the value of a? i)-2 ii) 4 iii) 2 iv) -4	1
15.	If I is a unit matrix of order 10 then the determinant of I is equal to _____. i)10 ii)1 iii)1/10 iv)9	1
16.	What is the total number of possible matrices of order 3x3 with each entry 2 and 0 ? i)9 ii)27 iii)81 iv)512	1
17.	If $A = \begin{bmatrix} 0 & 2 \\ 3 & -4 \end{bmatrix}$ and $kA = \begin{bmatrix} 0 & 3a \\ 2b & 24 \end{bmatrix}$, then the value of k, a, b are respectively i)-6, -12, -18 ii)-6,4,9 iii)-6, -4, -9 iv)-6,12,18	1
18.	If $A = \begin{bmatrix} 4 & x+2 \\ 2x-3 & x+2 \end{bmatrix}$ is a symmetric matrix, then x= i)3 ii)2 iii)4 iv)5	1
19.	if A is a square matrix of order 4 and I is unit matrix then which of the following is true? i) $\det(2A) = 2\det A$ ii) $\det(-A) = -\det A$ iii) $\det(A+I) = \det A+1$ iv) $\det(2A) = 16\det(A)$	1
20.	If A is a non-singular matrix satisfying $A^2 - A + 2I = 0$, then $A^{-1} =$ i) I-A ii) $\frac{1}{2}(I - A)$ iii) I+A iv) $\frac{1}{2}(I+A)$	1
21.	If the order of matrix A is $m \times p$. And the order of B is $p \times n$. Then the order of matrix AB is? (a) $n \times p$ (b) $m \times n$ (c) $n \times p$ (d) $n \times m$	1
22.	If a matrix has 6 elements, then number of possible orders of the matrix can be (a) 2 (b) 4 (c) 3 (d) 6	1

23.	<p>If $A = \text{diag} (3, -1)$, then matrix A is</p> <p>(a) $\begin{bmatrix} 0 & 3 \\ 2 & -1 \end{bmatrix}$ (b) $\begin{bmatrix} 2 & -1 \\ 3 & 0 \end{bmatrix}$</p> <p>(c) $\begin{bmatrix} 3 & 0 \\ 0 & -1 \end{bmatrix}$ (d) $\begin{bmatrix} 3 & -1 \\ 0 & -2 \end{bmatrix}$</p>	1
24.	<p>If $A = [a_{ij}]$ is a 2×3 matrix, such that $a_{ij} = \frac{(-i+2j)^2}{5}$ then a_{23} is</p> <p>(a) $\frac{1}{5}$ (b) $\frac{2}{5}$ (c) $\frac{9}{5}$ (d) $\frac{16}{5}$</p>	1
25.	<p>If $A = \text{diag.} [5, -2, 7]$; $B = \text{diag.} [7, 8, 5]$, then $3A - 2B =$</p> <p>(a) $\text{diag.} [1, -22, -11]$ (c) $\text{diag.} [-1, 22, -11]$</p> <p>(b) $\text{diag.} [-1, -22, 11]$ (d) $\text{diag.} [1, -22, 11]$</p>	1
26.	<p>If A is a symmetric matrix of integers with zeroes on the main diagonal, the sum of the entries of A must be an ____.</p> <p>a. integer b. odd integer c. even integer d. irrational number</p>	1
27.	<p>If X is any $m \times n$ matrix such that XY and YX both defined, then Y is an ____.</p> <p>a. $m \times n$ matrix b. $n \times m$ matrix c. $n \times n$ matrix d. $m \times m$ matrix</p>	1
28.	<p>If A is a square matrix of order p and if there exists another square matrix B of the same order p, such that $AB = BA = I$, then ____.</p> <p>a. A^{-1} does not exist b. AB is defined c. B is called the inverse matrix of A d. A is not the inverse of B</p>	1
29.	<p>The total number of elements in a matrix represents a prime number. The possible orders the matrix can have ____.</p> <p>a. 2 b. 9 c. 1 d. 4</p>	1
30.	<p>Assertion (A): If $A = \begin{bmatrix} 0 & 2 & -1 \\ -2 & 0 & 3 \\ 1 & -3 & 0 \end{bmatrix}$ then, A^{-1} is a skew symmetric matrix.</p> <p>Reason(R): If A is skew symmetric matrix then A^{-1} is skew symmetric matrix.</p> <p>(a) Both A and R are true and R is the correct explanation of A (b) both A and R are true but R is not correct explanation of A (c) A is true but R is false (d) A is false but R is true</p>	1
31.	<p>Let A, B, C are three matrices of same order.</p>	1

	<p>Now, consider the following statements:</p> <p>Assertion (A): If $A = B$, then $AC = BC$ Reason (R): If $AC = BC$, then $A = B$</p> <p>(a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.</p>	
32.	A is square matrix of order 3 and $ A = 7$. Write the value of $ \text{adj. } A $.	1
33.	A matrix has 5 elements, write all possible order it can have.	1
34.	Total number of possible matrices of order 2×3 with each entry 1 or 0 is. (a) 6 b) 36 c) 32 d) 64	1
35.	Assume Y, W and P, are the matrices of order $3 \times k$, $n \times 3$ and $p \times k$. Find the restrictions on n, k and p, so that $PY+WY$ will be defined.	1
36.	If A is a square matrix such that $A^2=A$, then $(I + A)^2 - 3A$ is (a) I (b) 2A (c) 3I (d) A	1
37.	If A and B are two matrices such that $AB = B$ and $BA = A$, then B^2 is equal to a) B b) A c) 1 d) 0	1
38.	Construct a 3×1 matrix $A = [a_{ij}]$ whose elements a_{ij} are given by $a_{ij} = \frac{1}{2} -3i-j $	1
39.	If A, B are symmetric matrices of same order, then $AB - BA$ is a (A) Skew symmetric matrix (B) Symmetric matrix (C) Zero matrix (D) Identity matrix	1
40.	If $A = \begin{bmatrix} \cos a & -\sin b \\ \sin b & \cos a \end{bmatrix}$, then $A+A' = I$, if the value of a is: a) $\frac{\pi}{6}$ b) $\frac{\pi}{3}$ c) π d) $\frac{3\pi}{2}$	1
41.	The matrix $\begin{bmatrix} 2 & -1 & 4 \\ 1 & 0 & -5 \\ -4 & 5 & 7 \end{bmatrix}$ is A) A symmetric matrix B) A skew symmetric matrix C) A diagonal matrix None of these	1
42.	A matrix has 18 elements, then possible number of orders of a matrix are A) 3	1

	<p>B) 4 C) 6 D) 5</p>	
43.	<p>If matrix A is of order $m \times n$, and for matrix B, AB and BA both are defined, then order of matrix B is</p> <p>A) $m \times n$ B) $n \times n$ C) $m \times n$ D) $n \times m$</p>	1
44.	<p>The diagonal elements of a skew symmetric matrix are</p> <p>A) all zeros B) are all equal to some scalar $k (\neq 0)$ C) can be any number D) none of these</p>	1
45.	<p>If $\begin{pmatrix} y + 2x & 5 \\ -x & 3 \end{pmatrix} = \begin{pmatrix} 7 & 5 \\ -2 & 3 \end{pmatrix}$, then the value of y is</p> <p>A) 11 B) 3 C) -3 D) 1</p>	1
46.	<p>Total no of possible matrices of order 3×3 with each entry 1 or 0 is</p> <p>A) 512 B) 64 C) 32 D) 36</p>	1
47.	<p>If matrix $A = \begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$ then AA^t equal to , where A^t is the transpose of matrix A.</p> <p>A) [14] B) [12] C) 0</p> <p style="text-align: right;">[10]</p>	1
48.	<p>If $A = \begin{bmatrix} 0 & a \\ 0 & 0 \end{bmatrix}$ then A^{16} is equal to</p> <p>A) A B) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ C) $\begin{pmatrix} 1 & 0 \\ 1 & 0 \end{pmatrix}$</p> <p style="text-align: right;">[12]</p>	1
49.	<p>If A and B are symmetric matrices, then AB-BA is a</p> <p>A) Symmetric matrix B) Skew symmetric matrix</p>	1

	C) Diagonal matrix Unit matrix	
50.	If A is a square matrix such that $A^2=A$, then $(I + A)^2 - 3A$ is A) I B) 2I C) 3I D) A	1
51.	If A and B are symmetric matrices, then ABA is a) symmetric matrix b) diagonal matrix c) skew - symmetric matrix d) scalar matrix	1
52.	If $A = \begin{bmatrix} 2 & 0 & -3 \\ 4 & 3 & 1 \\ -5 & 7 & 2 \end{bmatrix}$ is expressed as the sum of a symmetric and skew - symmetric matrix, then the symmetric matrix is a) $\begin{bmatrix} 2 & 2 & -4 \\ 2 & 3 & 4 \\ -4 & 4 & 2 \end{bmatrix}$ b) $\begin{bmatrix} 2 & 4 & -5 \\ 0 & 3 & 7 \\ -3 & 1 & 2 \end{bmatrix}$ c) $\begin{bmatrix} 4 & 4 & -8 \\ 4 & 6 & 8 \\ -8 & 8 & 4 \end{bmatrix}$ d) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
53.	If $A = \begin{bmatrix} 0 & 2 & -3 \\ -2 & 0 & -1 \\ 3 & 1 & 0 \end{bmatrix}$ then A is a a) skew - symmetric matrix b) symmetric matrix c) none of these d) diagonal matrix	1
54.	The number of all possible matrices of order 3×3 with each entry 0 or 1 is a) 81 b) none of these c) 512 d) 18	1
55.	If $A = \begin{bmatrix} 1 & 2 & x \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -2 & y \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ and $AB = I_3$, then $x + y$ equals a) - 1 b) 0 c) none of these d) 2	1
56.	$A = [a_{ij}]_{m \times n}$ is a square matrix, if a) $m < n$	1

	b) $m > n$ c) $m = n$ d) None of these	
57.	If $A = \begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix}$, $B = \begin{bmatrix} a & 1 \\ b & -1 \end{bmatrix}$ and $(A + B)^2 = A^2 + B^2$, then values of a and b are a) $a = 0, b = 4$ b) $a = 1, b = 4$ c) $a = 2, b = 4$ d) $a = 4, b = 1$	1
58.	If $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$, then A^2 is equal to a) $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$ b) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ c) $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$ d) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	1
59.	If A and B are matrices of same order, then $(AB' - BA')$ is a a) null matrix b) unit matrix c) symmetric matrix d) skew - symmetric matrix	1
60.	If A and B are two matrices of the order $3 \times m$ and $3 \times n$, respectively, and $m = n$, then the order of matrix $(5A - 2B)$ is a) 3×3 b) $m \times n$ c) $3 \times n$ d) $m \times 3$	1
61.	If a matrix has 8 elements then the total number of different orders of writing the matrices is a) 1 b) 2 c) 3 d) 4	1
62.	If $A = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ and $n \in \mathbb{N}$, then A^n is equal to a. $n A$ b. $2n A$ c. $2^{n-1} A$ d. $2^n A$	1
63.	$A = [a_{ij}]_{m \times n}$ is a square matrix, if a. $m < n$ b. $m > n$ c. $m = n$ d. none of these	1
64.	The number of all possible matrices of order 3×3 with each entry 0 or 1 is: a. 27	1

	b. 18 c. 81 d. 512	
65.	If $A = \begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} x & 0 \\ 1 & 1 \end{bmatrix}$ and $A = B^2$, then x equals a. -1 b. 1 c. 2 d. -2	1
66.	If A is a square matrix and $A^2 = A$, then $(I + A)^2 - 3A$ is equal to: a. I b. A c. 2A d. 3I	1
67.	The numbers of all possible matrices of order 2x2 with each entry 1, 2 or 3 is a. 12 b. 64 c. 81 d. 7	1
68.	If A and B are square matrices of same order, then $AB' - BA'$ is a a. skew – symmetric matrix b. symmetric matrix c. null matrix d. unit matrix	1
69.	If A is a square matrix such that $A^2 = A$, then find $(2 + A)^3 - 19A$. a. 8I b. 2I c. I d. A	1
70.	If the matrix A is both symmetric and skew symmetric matrix, then a. A is a diagonal matrix b. A is a zero matrix c. A is a square matrix d. none of these	1
71.	Radha has 3 notebooks and 2 pens, Krishna has 2 notebooks and 1 pen and Ram has 4 notebooks and 2 pens. A matrix is formed with the number of notebooks and pen that the three persons have in three rows and three columns. The number of elements in the matrix is (a) 14 (b) 6 (c) 2 (d) 8	1
72.	If 5 students have pens only, then a matrix with only one column is created which lead to the idea of a type of matrix. This matrix is known as (a) Row matrix (b) column matrix (c) square matrix (d) diagonal matrix	1
73.	Given that matrices A and B are of order 3 x n and m x 5 respectively, then the order of the matrix $C = 5A + 3B$ is (a) 3 x 5 (b) 5 x 3 (c) 3 x 3 (d) 5 x 5	1
74.	Sudha created a square matrix A such that $A^2 = A$, the $(I + A)^3 - 7A$ is equal to (a) A (b) I + A (c) I – A (d) I	1

75.	Given that $A = \begin{bmatrix} a & b \\ c & -c \end{bmatrix}$ and $A^2 = 3I$, then (a) $1 + a^2 + bc = 0$ (b) $1 - a^2 - bc = 0$ (c) $3 - a^2 - bc = 0$ (d) $3 + a^2 + bc = 0$	1																
76.	Neha has a factory which produces shoes for boys and girls in three different price categories labelled 1, 2 and 3. The quantity produced by the factory is represented by the matrix given below Boys Girls 1 $\begin{bmatrix} 80 & 40 \end{bmatrix}$ 2 $\begin{bmatrix} 65 & 70 \end{bmatrix}$ 3 $\begin{bmatrix} 50 & 75 \end{bmatrix}$ Now if the production in the factory is doubled in all categories then the revised quantities produced by the factory is given by the matrix (a) $\begin{bmatrix} 160 & 80 \\ 65 & 70 \\ 50 & 75 \end{bmatrix}$ (b) $\begin{bmatrix} 80 & 40 \\ 130 & 140 \\ 50 & 75 \end{bmatrix}$ (c) $\begin{bmatrix} 80 & 40 \\ 65 & 70 \\ 50 & 75 \end{bmatrix}$ (d) $\begin{bmatrix} 160 & 80 \\ 130 & 140 \\ 100 & 150 \end{bmatrix}$	1																
77.	For a matrix $A = \begin{bmatrix} 2 & 5 \\ -11 & 7 \end{bmatrix}$, the value of AI is (a) $\begin{bmatrix} -2 & -5 \\ 11 & -7 \end{bmatrix}$ (b) $\begin{bmatrix} 2 & 5 \\ -11 & 7 \end{bmatrix}$ (c) $\begin{bmatrix} 7 & 11 \\ -5 & 2 \end{bmatrix}$ (d) $\begin{bmatrix} 7 & -5 \\ 11 & 2 \end{bmatrix}$	1																
78.	There are 3 families A, B and C. The number of men, women and children in these families are as under: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Men</th> <th>Women</th> <th>Children</th> </tr> </thead> <tbody> <tr> <td>Family A</td> <td>2</td> <td>3</td> <td>1</td> </tr> <tr> <td>Family B</td> <td>2</td> <td>1</td> <td>3</td> </tr> <tr> <td>Family C</td> <td>4</td> <td>2</td> <td>6</td> </tr> </tbody> </table> When the above table is represented by a matrix, the order of the matrix is (a) 3×1 (b) 1×3 (c) 3×2 (d) 3×3		Men	Women	Children	Family A	2	3	1	Family B	2	1	3	Family C	4	2	6	1
	Men	Women	Children															
Family A	2	3	1															
Family B	2	1	3															
Family C	4	2	6															
79.	If $A = \begin{bmatrix} 0 & 2 \\ 3 & -4 \end{bmatrix}$ and $kA = \begin{bmatrix} 0 & 3a \\ 2b & 24 \end{bmatrix}$ then the value of k, a and b respectively are (a) -6, -12, -18 (b) -6, -4, -9 (c) -6, 4, 9 (d) -6, 12, 18	1																
80.	The number of all possible matrices of order 3×2 with entry 0 or 1 is (a) 18 (b) 27 (c) 64 (d) 512	1																

ANSWERS:

Q. NO	ANSWER	MARKS
1.	B	1
2.	C	1
3.	D	1
4.	D	1
5.	A	1
6.	B	1
7.	C	1
8.	C	1
9.	D	1
10.	B	1
11.	(iv)C(A+B') Ans- O(B') =2X3 O(A+B')=2X3 C(A+B') is not defined as number of column of C \neq number of rows in A+B'	1
12.	(iii)144 Ans- det(A)=12 Det(adjA) =det(A) ³⁻¹ =12 ² =144 properties:- det(adjA)=det(A) ⁿ⁻¹	1
13.	iii)3,8 ans:- AB exist if x+5=y BA exist if 11-y=x Solving these two equation : x=3 and y=8	1
14.	ii)4 ans:-if the determinant of a matrix is zero then the matrix is called singular. Thus, det(A)=0 i.e 2a-8=0 i.e a=4	1
15.	ii)1 ans:- determinant of a unit matrix of any order is 1.	1
16.	iv)512 ans:-in a 3x3 order matrix total number of entry is 9. Each entry is done by either 2 or 0 i.e by 2ways.so, by fundamental principle of counting the total number of ways in which 9elements can be chosen to form matrices is 2 ⁹ =512 .	1
17.	iii)-6, -4, -9 ans:- $kA=k \begin{bmatrix} 0 & 2 \\ 3 & -4 \end{bmatrix} = \begin{bmatrix} k & 2k \\ 3k & -4k \end{bmatrix} = \begin{bmatrix} 0 & 3a \\ 2b & 24 \end{bmatrix}$ by equality of matrices -4k=24 i.e k=-6 3a=2k i.e a=-4 2b=3k i.e b=-9	1
18.	iv)5 ans:- for a symmetric matrix A=A ^T x+2= 2x-3 x=5	1
19.	iv)det(2A) = 16(detA) ans:- $ kA = k^n A $ where A is matrix of order n	1

20.	ii) $\frac{1}{2}(I - A)$ ans:-A is non-singular matrix so A^{-1} exist multiply A^{-1} in both side of matrix equation and use $A^{-1}A=I$ and $A^{-1}I=A^{-1}$	1
21.	b	1
22.	b	1
23.	c	1
24.	d	1
25.	d	1
26.	c	1
27.	b	1
28.	c	1
29.	a	1
30.	a	1
31.	C	1
32.	49	1
33.	5×1 or 1×5	1
34.	D	1
35.	K=3 and p=n	1
36.	A	1
37.	A	1
38.	$A = \begin{bmatrix} 2 \\ 7/2 \\ 5 \end{bmatrix}$	1
39.	A	1
40.	B	1
41.	D	1
42.	C	1
43.	D	1
44.	A	1
45.	B	1
46.	A	1
47.	A	1
48.	B	1
49.	B	1
50.	A	1
51.	(a)	1
52.	(a)	1
53.	(a)	1
54.	(c)	1
55.	(b)	1
56.	(a)	1
57.	(b)	1

58.	(d)	1
59.	(d)	1
60.	(c)	1
61.	d	1
62.	d	1
63.	c	1
64.	d	1
65.	b	1
66.	c	1
67.	c	1
68.	a	1
69.	a	1
70.	b	1
71.	b	1
72.	b	1
73.	a	1
74.	d	1
75.	c	1
76.	d	1
77.	b	1
78.	d	1
79.	b	1
80.	C	1