1.	If $A = \begin{bmatrix} 3 & 4 \\ 1 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -2 \\ 3 & -1 \end{bmatrix}$ then $(A + B)^{-1}$ is

a. $\begin{bmatrix} -1 & 1 \\ 1 & -\frac{5}{2} \end{bmatrix}$ b. Does not exist   c. $\begin{bmatrix} 1 & 1 \\ 1 & \frac{5}{2} \end{bmatrix}$ d. $\begin{bmatrix} 1 & -1 \\ -2 & \frac{5}{2} \end{bmatrix}$

2.	If C_{ij} is the cofactor of P_{ij}, where $P = \begin{bmatrix} 2 & 0 & 1 \\ -1 & 0 & 4 \\ 3 & 2 & 1 \end{bmatrix}$, then $C_{13}.C_{23}$

A	8	B	12	C	-12	D	0

3.	If $\begin{vmatrix} x & 6 \\ 4 & x \end{vmatrix} = \begin{vmatrix} 2x & 5 \\ 5 & x \end{vmatrix}$, then the value of x is

A	$\pm\sqrt{5}$	B	± 1	C	$\pm\sqrt{24}$	D	± 7

4.	If A and B are square matrices each of order 3, such that $|A| = -1$ and $|B| = 3$ then $|3AB| = \_$

A	-9	B	-81	C	-27	D	-18

5.	If $\begin{vmatrix} 2 & 3 & 2 \\ x & x & x \\ 4 & 9 & 1 \end{vmatrix} + 3 = 0$ then the value of x is $\_\_\_$

A	-1	B	0	C	1	D	3

6.	If the points (2, 3), (k, -1) and (-3, -7) are collinear, then the value of k is

A	5	B	7	C	10	D	0

7.	If A and B are invertible matrices of same order, then which of the following statements is not true?

A	$\left|A^{-1}\right| = \|A\|^{-1}$	B	$adjA = \|A\|A^{-1}$	C	$(AB)^{-1} = B^{-1}A^{-1}$	D	$(A + B)^{-1} = (A)^{-1} + (B)^{-1}$

8.	In a matrix A, the sum of the products of elements of any row with the co-factors of corresponding elements is equal to the value of

A	$\|A\|$	B	1	C	0	D	$\|adjA\|$

9.	If $A^2 - A + I = 0$, then inverse of A is equal to							
	A	A+ I	B	A- I	C	I-A	D	A+2I

10.	If $A\,adjA = \begin{pmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{pmatrix}$ then $|A| + |adjA|$							
	A	12	B	9	C	3	D	27

11.	If $A^2 = A$, then $(I + A)^3 - 7A =$							
	A	A	B	I	C	4A	D	4I

12.	Which of the following matrix doesn't have inverse?							
	A	$\begin{bmatrix} 3 & 4 \\ 2 & 3 \end{bmatrix}$	B	$\begin{bmatrix} 3 & 4 \\ 3 & 3 \end{bmatrix}$	C	$\begin{bmatrix} 3 & 9 \\ -1 & 3 \end{bmatrix}$	D	$\begin{bmatrix} 3 & 9 \\ 1 & 3 \end{bmatrix}$

13.	If A= $\begin{bmatrix} 3 & 4 \\ 2 & 3 \end{bmatrix}$ then $|100A| =$ ___							
	A	10000	B	1000	C	100	D	10

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

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.

14.	(A): If A= $\begin{pmatrix} 1 & 0 & 1 \\ 0 & 2 & -1 \\ 1 & 1 & k \end{pmatrix}$ is singular, then $k = \frac{1}{2}$ (R): For any square matrix A of order n, $|A| = 0$
15.	(A) If A and B are symmetric matrices, then AB − BA is symmetric. (R) If A is symmetric, then $A^T = A$.

16.	Case study-based question:
	 Manjit wants to donate a rectangular plot of land for a school in his village. When he was asked to give dimensions of the plot, he told that if its length is decreased by 50 m and breadth is increased by 50m, then its area will remain same, but if length is decreased by 10m and breadth is decreased by 20m, then its area will decrease by 5300 m²
	     a. If the dimensions of the rectangular plot is $x\,m \times y\,m$, wite the equations in terms of x and y in matrix form.
	     b. Evaluate x and y.
	     c. How much area is the rectangular field?

17.	Case study-based question:
	A school wants to award its students for the values of Honesty, Regularity and Hard work with a total cash award of Rs. 6000. Three times the award money for Hard work added to that given for honesty amounts to Rs. 11000. The award money given for Honesty and Hard work together is double the one given for Regularity.
	a. Represent the above situation algebraically and
	b. Represent the above situation in matrix form.
	c. Determine whether the equations are consistent or not.
	d. Find the award for each value, using the matrix method.
18.	Solve the following using Cramer's rule: $x + 2y - z = 6,\ x + y + z = 6,\ x - y - z = 0$
19.	If A= $\begin{pmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \\ 1 & 1 & 2 \end{pmatrix}$ then show that $A^3 - 6A^2 + 9A - 4I = 0.$ Hence find A^{-1}.
20.	Given: A= $\begin{pmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{pmatrix}$ and B = $\begin{pmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{pmatrix}$ find AB. Use the product to solve the following system of equations: $x - y = 3,\ 2x + 3y + 4z = 17,\ y + 2z = 7$

ANSWER

1.	d	2.	a	3.	d	4.	b	5.	a
6.	d	7.	d	8.	a	9.	c	10.	a
11.	b	12.	d	13.	a	14.	c	15.	d

16.	200 m, 150m . 30000sq.m	17. Consistent ₹ 500, ₹ 2000, ₹ 3500		18.	x=3 y=2 z=1
20.	x=2 y=-1 z=4				

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