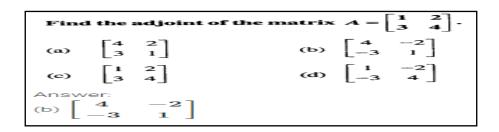
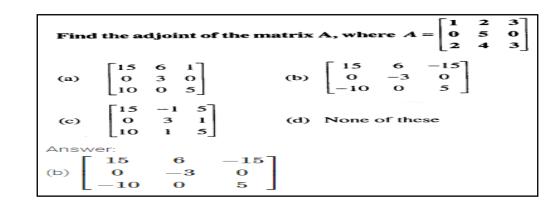
Unit 5: Matrices and Determinants

1.



2.



3.

Find x, if
$$\begin{bmatrix} 1 & 2 & x \\ 1 & 1 & 1 \\ 2 & 1 & -1 \end{bmatrix}$$
 is singular (a) 1 (b) 2 (c) 3 (d) 4 Answer: (d) 4

4.

```
Find the value of x for which the matrix \pmb{A}=\begin{bmatrix}3-x&2&2\\2&4-x&1\\-2&-4&-1-x\end{bmatrix} is singular. (a) 0, 1 (b) 1, 3 (c) 0, 3 (d) 3, 2 Answer: (c) 0, 3
```

5.

If
$$\begin{bmatrix} 2+x & 3 & 4 \\ 1 & -1 & 2 \\ x & 1 & -5 \end{bmatrix}$$
 is a singular matrix, then x is

(a) $\frac{13}{25}$ (b) $-\frac{25}{13}$

(c) $\frac{5}{13}$ (d) $\frac{25}{13}$

Answer:

6. What is the value of following determinant:

$$egin{array}{c|cccc} x & x+y & x+2y \ x+2y & x & x+y \ x+y & x+2y & x \end{array}$$

a)
$$9x^{2}(x + y)$$

b)
$$9y^2(x + y)$$

c)
$$3y^2(x + y)$$

d)
$$7x^2(x + y)$$

7. If a matrix A is both symmetric and skew symmetric then matrix A is

- a) A scalar matrix
- b) A diagonal matrix
- c) A zero matrix of order n x n
- d) A rectangular matrix

8. If A and B are symmetric matrices of the same order, then

- a) AB is a symmetric matrix
- b) A B is a skew-symmetric matrix
- c) AB+BA is a symmetric matrix
- d) AB BA is a symmetric matrix

9. A matrix $A = [a_{ij}]_{mxn}$ is said to be symmetric if

a)
$$a_{ij} = 0$$

b)
$$a_{ij} = a_{ji}$$

c)
$$a_{ij} = a_{ij}$$

d)
$$a_{ij} = 1$$

 $10.A = [a_{ij}]_{mxn}$ is a square matrix if

a)
$$m = n$$

b)
$$m < n$$

c)
$$m > n$$

SDJ International College, Surat

- d) none of these
- 11. If A and B are square matrices then (AB)' =
 - a) B'A'
 - b) A'B'
 - c) A B'
 - d) A'B
- 12.If A and B matrices are of same order and A + B = B + A, this law is known as
 - a) Distributive law
 - b) Commutative law
 - c) Associative law
 - d) Cramer's law
- 13. If a matrix has equal number of columns and rows then it is said to be a
 - a) Row matrix
 - b) Identical matrix
 - c) Square matrix
 - d) Rectangular matrix
- 14.If determinant of a matrix is equal to zero, then it is said to be
 - a) Square matrix
 - b) Singular matrix
 - c) Non-singular matrix
 - d) Identical matrix
- 15.If the number of columns and rows are not equal in a matrix, then it is said to be a
 - a) Rectangular matrix
 - b) Square matrix
 - c) Diagonal matrix
 - d) Null matrix
- 16. The law which does not hold in multiplication of matrices is known as
 - a) Distributive law
 - b) Inverse law
 - c) Associative law
 - d) Commutative law
- 17.In matrices (AB)^T equal to
 - a) B
 - b) A
 - c) $A^{T}B^{T}$

SDJ International College, Surat

- d) $B^{T}A^{T}$
- 18. If determinant of a matrix is not equal to zero, then it is said to be
 - a) Non-singular matrix
 - b) Square matrix
 - c) Singular matrix
 - d) Identical matrix
- 19.A diagonal matrix having equal elements is called a
 - a) Square matrix
 - b) identical matrix
 - c) scalar matrix
 - d) rectangular matrix
- 20.If A, B and c matrices are of same order and (A + B) + C = A + (B + C),

this law is known as

- a) Cramer's law
- b) Distributive law
- c) Commutative law
- d) Associative law
- 21. Generally the matrices are denoted by
 - a) Capital letters
 - b) Numbers
 - c) Small letters
 - d) Operational signs
- 22. A matrix with only 1 column is called
 - a) Column matrix
 - b) Row matrix
 - c) Identical matrix
 - d) Square matrix
- 23. We can subtract two matrices A and B if their
 - a) Elements are same
 - b) Order is same
 - c) Rows are same
 - d) Columns are same
- 24. Vertically arranged elements in a matrix are called
 - a) Columns
 - b) Rows
 - c) Determinants
 - d) Transpose

SDJ International College, Surat

- 25.A scalar matrix having each element equal to 1 is said to be
 - a) Unit or identical matrix
 - b) Rectangular matrix
 - c) Square matrix
 - d) Diagonal matrix
- 26. If all elements in a matrix are zeros, then it is called a
 - a) Column matrix
 - b) diagonal matrix
 - c) identical matrix
 - d) null/zero matrix
- 27.A matrix with only 1 row is called
 - a) Column matrix
 - b) Row matrix
 - c) Identical matrix
 - d) Square matrix
- 28. If two matrices A and B have same order and their corresponding elements are equal then it is calles
 - a) Matrix equality
 - b) Rectangular matrix
 - c) Square matrix
 - d) Identical matrix
- 29. If a matrix 'A' has 'm' number of rows and 'n' number of columns then m x n is said to be
 - a) Transpose of a matrix
 - b) Order of a matrix
 - c) Determinant of a matrix
 - d) Equality of a matrix
- 30.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) nxp
 - b) mxn
 - c) nxp
 - d) nxm
- 31. Transpose of a rectangular matrix is a
 - a) Scalar matrix
 - b) Square matrix
 - c) Diagonal matrix

- d) Rectangular matrix
- 32. Transpose of a column matrix is
 - a) Row matrix
 - b) Column matrix
 - c) Zero matrix
 - d) diagonal matrix
- 33.two matrices A and B are multiplied to get AB if
 - a) both are rectangular
 - b) both have same order
 - c) number of columns of A is equal to rows of B
 - d) number of rows of A is equal to columns of B
- 34.If A is symmetric matrix, then $A^{T} =$
 - a) 0
 - b) A
 - c) Det(A)
 - d) Diagonal matrix
- 35. Matrices obtained by changing rows and columns is called
 - a) Symmetric matrix
 - b) Transpose matrix
 - c) Rectangular matrix
 - d) None of above
- 36.[0 0 0] is
 - a) Null matrix
 - b) Scalar matrix
 - c) Identity matrix
 - d) Diagonal matrix
- 37. Order of a matrix [2 5 7] is
 - a) 1 x 1
 - b) 1 x 3
 - c) 3 x 1
 - d) 3 x 3

38.

If
$$\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$$
 then value of x is (a) 3 (b) ± 6 (c) 8 (d) -2

39.

3. What is 'a', if

 $B = \begin{bmatrix} 1 & 4 \\ 2 & a \end{bmatrix}$

is a singular matrix?

- (A) 5
- (B) 6
- (C) 7
- (D) 8

The value of determinant $\begin{vmatrix} 1 & a & b+c \\ 1 & b & c+a \\ 1 & c & a+b \end{vmatrix}$

- 1. 0
- 2.
- 3. a + b + c
- 4. 3

Answer (Detailed Solution Below)

Option 1:0

40.