PARISHRAM PUBLICATIONS
PUNE

NAME of Students :- _____

Maths :- Matrices

Class : XII **Total Marks :-**

1. Two matrices P and Q are added if
A) number of columns of P is equal to number of columns of Q
B) both have same order
C) both have same ranks
D) number of rows of P is equal to number of rows of Q

2. If $A=\begin{bmatrix}2 & 4\\ 3 & 5\end{bmatrix}$ what is the new matrix when transformed to $R_1 \leftrightarrow R_2$.

A) $\begin{bmatrix}3 & 5\\ 2 & 4\end{bmatrix}$ B) $\begin{bmatrix}3 & 4\\ 5 & 2\end{bmatrix}$

C) $\begin{bmatrix}4 & 2\\ 5 & 3\end{bmatrix}$ D) $\begin{bmatrix}2 & 5\\ 3 & 4\end{bmatrix}$

3. If $A=\begin{bmatrix}0 & 3\\ 2 & 6\end{bmatrix}$ what is the new matrix when transformed to $R_2 \rightarrow 4R_2$.

A) $\begin{bmatrix}8 & 24\\ 0 & 3\end{bmatrix}$ B) $\begin{bmatrix}0 & 12\\ 2 & 24\end{bmatrix}$

C) $\begin{bmatrix}0 & 3\\ 8 & 24\end{bmatrix}$ D) $\begin{bmatrix}0 & 2\\ 3 & 6\end{bmatrix}$

4. If $A=\begin{bmatrix}1 & 2\\ 0 & 2\end{bmatrix}$ what is the new matrix when transformed to $C_2 \rightarrow 3C_2$.

A) $\begin{bmatrix}0 & 6\\ 0 & 2\end{bmatrix}$ B) $\begin{bmatrix}0 & 6\\ 1 & 2\end{bmatrix}$

C) $\begin{bmatrix}6 & 2\\ 6 & 2\end{bmatrix}$ D) $\begin{bmatrix}1 & 6\\ 0 & 6\end{bmatrix}$

5. What is the symbol ~ in matrices read as.
A) Similar B) Equivalent C) Equal to D) raise to

6. If $A=\begin{bmatrix}\cos\alpha & \sin\alpha\\ \sin\alpha & \cos\alpha\end{bmatrix}$ then A^{-1} =

A) $\begin{bmatrix}\frac{1}{\cos\alpha} & \frac{-1}{\sin\alpha}\\ \frac{1}{\sin\alpha} & \frac{1}{\cos\alpha}\end{bmatrix}$ B) $\begin{bmatrix}\cos\alpha & \sin\alpha\\ -\sin\alpha & \cos\alpha\end{bmatrix}$

C) $\begin{bmatrix}-\cos\alpha & \sin\alpha\\ -\sin\alpha & \cos\alpha\end{bmatrix}$ D) $\begin{bmatrix}-\cos\alpha & \sin\alpha\\ \sin\alpha & -\cos\alpha\end{bmatrix}$

7. If $F(\alpha)=\begin{bmatrix}\cos\alpha & -\sin\alpha & 0\\ \sin\alpha & \cos\alpha & 0\\ 0 & 0 & 1\end{bmatrix}$ where $\alpha \in R$ then $[F(\alpha)]^{-1}$ is =
A) F(-α) B) $F(\alpha^{-1})$
C) F(2 α) D) None of these

8. The inverse of $A=\begin{bmatrix}0 & 1 & 0\\ 1 & 0 & 0\\ 0 & 1 & 1\end{bmatrix}$ is
A) 1 B) A
C) A' D) -1

9. The inverse of a symmetric matrix is –
A) Symmetric B) Non-symmetric
C) Null matrix D) Diagonal matrix

10. For a 2 × 2 matrix A, if A(adj A) = $\begin{bmatrix}10 & 0\\ 0 & 10\end{bmatrix}$ then determinant A equals
A) 20 B) 10
C) 30 D) 40

11. How can we find the Inverse of matrix A using Adjoint method?
A) |A|. (adj. A) B) $\frac{1}{|A|}$. (adj. A)
C) I. (adj. A) D) $\frac{1}{|I|}$. (adj. A)

12. What is (BA)–1 equals in matrices ?
A) B^{-1} **B) A^{-1}**
C) $B^{-1}A^{-1}$ **D) $A^{-1}B^{-1}$**

13. What is transpose of Column Matrix?
A) Diagonal Matrix B) Zero matrix
C) Row matrix D) Triangular matrix.

14. The Inverse of diagonal matrix is
A) Diagonal Matrix B) Rectangular Matrix
C) Inverse Matrix D) Transpose Matrix

15. For solving a system of linear equations, the given equations are reduced to a certain form to get the solution this method is known as?

A) Method of Inversion
B) Method of reduction
C) Method of factorization
D) Method of polynomial.

16. What is the inverse of symmetric matrix if it exists.
A) Symmetric matrix
B) Non Symmetric matrix
C) Skew-symmetric matrix
D) Null matrix

17. If A and B are two square matrices of the same order such that AB = BA = I, then A and B are inverse of each other.
A) False B) True
C) Can't say D) all of the above

18. If a matrix $A = A^T$ then the matrix is said to be?
A) symmetric matrix
B) skew symmetric matrix
C) Identity matrix
D) Scalar matrix

19. If $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ and A(adj A) = kI then the value of k is _____
A) 1 B) -1
C) 0 D) -3

20. If $A = \begin{bmatrix} 2 & -4 \\ 3 & 1 \end{bmatrix}$ then the adjoint of matrix A is
A) $\begin{bmatrix} -1 & 3 \\ -4 & 1 \end{bmatrix}$ B) $\begin{bmatrix} 1 & 4 \\ -3 & 2 \end{bmatrix}$
C) $\begin{bmatrix} 1 & 3 \\ 4 & -2 \end{bmatrix}$ D) $\begin{bmatrix} -1 & -3 \\ -4 & 2 \end{bmatrix}$

21. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and A(adj A) = kI then the value of k is
A) 2 B) -2
C) 10 D) -10

22. If $A = \begin{bmatrix} \lambda & 1 \\ -1 & -\lambda \end{bmatrix}$ the A^{-1} does not exist if λ =
A) 0 B) ±1
C) 2 D) 3

23. A matrix having i rows and j columns with $i \neq j$ is said to be a
A) Rectangular matrix B) Symmetric matrix
C) Scalar matrix D) Identity Matrix

24. Two matrices P and Q are multiplied to get QP if
A) both have same order
B) both have same ranks.
C) Number of columns of P is equal to number of columns of Q
D) Number of rows of P is equal to number of columns of Q

25. What type of law is (A + B)C = AC + BC?
A) Identity law B) Commutative law
C) Associative law D) Distributive law

26. (MN)O = M(NO), this law is known as ?
A) additive law B) Cramer's law
C) Associative law D) Inverse law

27. If $A = \begin{bmatrix} 5 & 6 \\ 6 & 7 \end{bmatrix}$ what is the new matrix when transformed to $C_1 \rightarrow 3C_2$.
A) $\begin{bmatrix} 18 & 21 \\ 6 & 7 \end{bmatrix}$ B) $\begin{bmatrix} 18 & 6 \\ 21 & 7 \end{bmatrix}$
C) $\begin{bmatrix} 15 & 6 \\ 18 & 7 \end{bmatrix}$ D) $\begin{bmatrix} 21 & 6 \\ 18 & 7 \end{bmatrix}$

28. If $A = \begin{bmatrix} 1 & -1 & 3 \\ 2 & 3 & 2 \end{bmatrix}$ what is the new matrix when transformed to $C_1 \rightarrow C_1 + 2C_3$.
A) $\begin{bmatrix} 8 & 3 & 2 \\ -1 & -1 & 3 \end{bmatrix}$ B) $\begin{bmatrix} -1 & -1 & 3 \\ 8 & 3 & 2 \end{bmatrix}$
C) $\begin{bmatrix} 6 & 3 & 2 \\ 7 & -1 & 3 \end{bmatrix}$ D) $\begin{bmatrix} 7 & -1 & 3 \\ 6 & 3 & 2 \end{bmatrix}$

29. If $A = \begin{bmatrix} 6 & 1 & 3 \\ 0 & 3 & 1 \\ 0 & 1 & 2 \end{bmatrix}$ then |A| = ?
A) 25 B) 20
C) 30 D) 35

30. Inverse of matrix exist if and only if the given matrix is.
A) Nonsingular matrix B) Identity matrix
C) Singular matrix D) Triangular matrix

31. What is number of non-zero rows in an echlon form is called as?
A) Inverse of matrix
B) Conjugate of matrix
C) reduced echlon form
D) rank of the matrix

32. What is 'a' ? If $A = \begin{bmatrix} a & 3 \\ 2 & 1 \end{bmatrix}$ is a singular matrix
A) 2 B) 4
C) 0 D) 6

33. Which type of matrix is this $\begin{bmatrix} 1 & 2 & 4 \\ 0 & 1 & 5 \\ 0 & 0 & 3 \end{bmatrix}$?

A) Identity Matrix
B) Upper triangular matrix
C) Lower triangular matrix
D) Inverse Matrix

34. If |A| = 0, then A is which type of matrix?
A) Zero matrix B) Identity matrix
C) Singular matrix D) Non Singular matrix

35. Which type of matrix is this $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$?
A) Inverse Matrix B) Adjoint Matrix
C) Identity Matrix D) Compound Matrix

36. What is the determinant of $A = \begin{bmatrix} 1 & 3 & 2 \\ 3 & 1 & 2 \\ 1 & 2 & 3 \end{bmatrix}$?
A) –5 B) 10
C) 15 D) –12

37. If P and Q matrices are of same order and Q + P = P + Q, this law is known as ?
A) Cramer's law B) Distributive law
C) Commutative law D) Associative law

38. We can add two matrices if and only if?
A) order is same B) columns are same
C) rows are same D) rank is same

39. If a matrix has equal number of columns and rows then it is said to be a.
A) Identity matrix B) Rectangular matrix
C) Symmetric matrix D) Square matrix.

40. The matrix $A = \begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix}$ us a ?
A) odd matrix B) even matrix
C) symmetric matrix D) scalar matrix

41. The inverse of $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ is
A) $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ B) $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
C) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ D) None of these

42. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, adj $A = \begin{bmatrix} 4 & a \\ -3 & b \end{bmatrix}$ then the value of a and b are,
A) a = -2, b = 1 B) a = 2, b = 4
C) a = 2, b = -1 D) a = 1, b = -2

43. If $A' = -\frac{1}{2}\begin{bmatrix} 1 & -4 \\ -1 & 2 \end{bmatrix}$ then A =
A) $\begin{bmatrix} 2 & 4 \\ -1 & 1 \end{bmatrix}$ B) $\begin{bmatrix} 2 & 4 \\ 1 & -1 \end{bmatrix}$
C) $\begin{bmatrix} 2 & -4 \\ 1 & 1 \end{bmatrix}$ D) $\begin{bmatrix} 2 & 4 \\ 1 & 1 \end{bmatrix}$

44. A square or a rectangular array of numbers written within square brackets in a definite order in rows and columns is known as
A) Equation B) Determinant
C) Expression D) Matrix

45. If $A = \begin{bmatrix} 8 & 2 \\ 9 & 3 \end{bmatrix}$ what is the new matrix when transformed to $R_1 \rightarrow 2R_2$.
A) $\begin{bmatrix} 4 & 2 \\ 6 & 3 \end{bmatrix}$ B) $\begin{bmatrix} 9 & 3 \\ 8 & 2 \end{bmatrix}$
C) $\begin{bmatrix} 18 & 6 \\ 9 & 3 \end{bmatrix}$ D) $\begin{bmatrix} 18 & 9 \\ 6 & 3 \end{bmatrix}$

46. A matrix is said to be null matrix when it contains
A) all elements as 0
B) all elements of row are equal to all elements of columns.
C) All elements as 1
D) identical values.

47. Equations are said to be homogeneous equations when it has
A) Real solutions B) Common Solutions
C) Complex solutions D) No solutions

48. If $A = \begin{bmatrix} 2 & -1 & 3 \\ 4 & 2 & 5 \\ 0 & 4 & -1 \end{bmatrix}$, then co-factor A_{32} is
A) –2 B) –8
C) 4 D) 2

49. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 2 & 1 & -3 \\ -1 & 2 & 3 \end{bmatrix}$, then co-factors of 3rd row are
A) 4, –5, 1 B) –4, 5, –1
C) –4, 5, 1 D) 4, 5, –1

50. If $A = \begin{bmatrix} -1 & 5 \\ -3 & 2 \end{bmatrix}$, then adj A =
A) $\begin{bmatrix} 2 & 3 \\ -3 & -1 \end{bmatrix}$ B) $\begin{bmatrix} 1 & -2 \\ 3 & -2 \end{bmatrix}$
C) $\begin{bmatrix} 2 & -5 \\ 3 & -1 \end{bmatrix}$ D) $\begin{bmatrix} -2 & 5 \\ -3 & 1 \end{bmatrix}$