Choose the correct answer.

1. The order of the matrix $\begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$ is
   (a) 1×1 (b) 3×3 (c) 3×1 (d) 1×3

2. A matrix in which the number of rows is not equal to the number of columns is called a
   (a) diagonal matrix   (b) rectangular matrix   (c) square matrix   (d) scalar matrix

3. A matrix with a single row is called a
   (a) column matrix   (b) row matrix   (c) null matrix   (d) identity matrix

4. A square matrix all of whose elements except the main diagonal are zeros is called a
   (a) null matrix   (b) singular matrix   (c) symmetric matrix   (d) diagonal matrix

5. Let $A = [a_{ij}]$ be a square matrix of order n. If $a_{ij} = 0$ for all $i \neq j$ and $a_{ij} = 1$ for all $i = j$, then A is
   (a) scalar matrix   (b) identity matrix   (c) null matrix   (d) symmetric matrix

6. A square matrix A for which $A^t = A$ is called a
   (a) column matrix   (b) symmetric matrix   (c) row matrix   (d) skew-symmetric matrix

7. A square matrix A with complex entries for which $(\vec{A})^t = -A$ is called
   (a) symmetric matrix   (b) identity matrix   (c) hermitian matrix   (d) skew-hermitian matrix

8. If order of A is $m\times n$ and order of B is $n\times p$ then order of AB is
   (a) $m\times m$ (b) $n\times n$ (c) $m\times p$ (d) $p\times m$

9. If $A = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$ then order of A^t is
   (a) 1×3 (b) 3×3 (c) 3×1 (d) 1×1

10. The transpose of a rectangular matrix is a
    (a) square matrix   (b) rectangular matrix   (c) row matrix   (d) column matrix

11. If A is any matrix then its additive inverse is
    (a) A   (b) A^{-1} (c) A^t (d) $-A$

12. $\begin{bmatrix} 1 & 2 & 3 \\ 0 & 5 & 6 \\ 0 & 0 & 7 \end{bmatrix}$ is a
    (a) diagonal matrix   (b) scalar matrix   (c) triangular matrix   (d) identity matrix

13. $\begin{bmatrix} 13 & 0 & 0 \\ 0 & 13 & 0 \\ 0 & 0 & 13 \end{bmatrix}$ is a
    (a) diagonal matrix   (b) scalar matrix   (c) triangular matrix   (d) identity matrix

14. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ then |A| =
    (a) 0   (b) 1   (c) -2   (d) 10

15. If $\begin{vmatrix} k & 4 \\ 4 & k \end{vmatrix} = 0$ then k =
    (a) ± 4 (b) 0   (c) 16   (d) none of these

16. If A is a non singular matrix then $A^{-1} =$

(a) $\dfrac{1}{|A|}$ (b) $\dfrac{adjA}{|A|}$ (c) $\dfrac{|A|}{adjA}$ (d) $\dfrac{1}{AadjA}$

17. If A and B are non singular matrices then $(AB)^{-1} =$

(a) A^{-1} (b) B^{-1} (c) $A^{-1}B^{-1}$ (d) $B^{-1}A^{-1}$

18. The number of non zero rows in echelon form of a matrix is called

(a) order of matrix (b) rank of matrix (c) row operation (d) none of these

19. Matrices are represented by

(a) natural numbers (b) real numbers (c) small letters (d) capital letters

20. If order of a is $m \times n$, then order of A^t is

(a) $m \times m$ (b) $n \times n$ (c) $m \times n$ (d) $n \times m$

21. If the matrices A and B are conformable for multiplication then $(AB)^t =$

(a) AB (b) $A^t B^t$ (c) $B^t A^t$ (d) $A^t B$

22. If the matrix $\begin{bmatrix} 1 & 4 \\ 3 & 2 \end{bmatrix}$ is singular then $1 =$

(a) 2 (b) 6 (c) 4 (d) 8

23. Minor of an element a_{ij} is denoted by

(a) M_{ij} (b) A_{ij} (c) |A| (d) none of these

24. Cofactor of an element a_{ij} is defined by

(a) $(-1)^{i+j} |A|$ (b) $(-1)^{i+j} M_{ij}$ (c) $(-1)^{i+j} M^{-1}$ (d) none of these

25. $\begin{vmatrix} 1 & a & b+c \\ 1 & b & c+a \\ 1 & c & a+b \end{vmatrix} =$

(a) a+b+c (b) 0 (c) 1 (d) none of these

26. If $A = \begin{bmatrix} 0 & 1 & 3 \\ 0 & 2 & 4 \\ 0 & 3 & 5 \end{bmatrix}$ then |A| =

(a) 0 (b) 1 (c) 10 (d) -1

27. Two matrices are said to be conformable for the addition if they have the same

(a) rank (b) order (c) both of above (d) none of these

28. If A and B are two matrices then which is true

(a) AB=BA (b) $A - B = B - A$ (c) A+B=B+A (d) all of these

29. The inverse of the matrix exist only if the matrix is

(a) rectangular matrix (b) square matrix (c) row matrix (d) column matrix

30. $(A + A^t)^t =$

(a) $A + A$ (b) $A^t + A^t$ (c) $-(A + A^t)$ (d) $(A + A^t)$

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