Important one marker from Matrices and Determinants

Q.1. Find x and y if: $2\begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix}+\begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix}=\begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$.

Q.2.Evaluate: $\begin{vmatrix} a+ib & c+id \\ -c+id & a-ib \end{vmatrix}$

Q.3. Find the cofactor of diagonal elements in the following $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$, also find $a_{23}.A_{23}$

Q.4.For what value of x, is the following matrix singular? $\begin{bmatrix} 3-2x & x+1 \\ 2 & 4 \end{bmatrix}$

Q.5. A matrix A, of order 3x3, has determinant 4. Find the value of $|3A|$.

Q.6.Construct a 2x3 matrix A= $[a_{ij}]whoseelementsaregivenbya_{ij}=\frac{3+i}{2-j}$

Q.7.If $\begin{vmatrix} x & x \\ 1 & x \end{vmatrix}=\begin{vmatrix} 3 & 4 \\ 1 & 2 \end{vmatrix}$, find the value of x.

Q.8.If matrix A = $\begin{pmatrix} 1 & 2 & 3 \end{pmatrix}$, find AA^{T}.

Q.9. Write the value of the determinant $\begin{vmatrix} 2 & 3 & 4 \\ 5 & 6 & 8 \\ 6x & 9x & 12x \end{vmatrix}$.

Q.10. If A is an invertible matrix of order 3 and $|A|=5$, then find $|adjA|$.

Q.11.Find x for which $\begin{vmatrix} x & 4 \\ 2 & 2x \end{vmatrix}=0$

Q.12. write the value of the determinant:

$$\begin{vmatrix} a-b & b-c & c-a \\ b-c & c-a & a-b \\ c-a & a-b & b-c \end{vmatrix}$$

Q.13. Evaluate: $2\begin{vmatrix} 7 & -2 \\ -10 & 5 \end{vmatrix}$

Q.14. If A = $\begin{bmatrix} 3 & 4 \\ 2 & 3 \end{bmatrix}$, $find A + A'$.

Q.15.If A is a non-singular matrix of order 3 and $|adjA| = |A|^K$, write the value of K.

Q.16. If A = $\begin{bmatrix} \cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha \end{bmatrix}$, then for what value of α is A an identity matrix?

Q.17. If $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}\begin{bmatrix} 3 & 1 \\ 2 & 5 \end{bmatrix} = \begin{bmatrix} 7 & 11 \\ k & 23 \end{bmatrix}$, find the value of k.

Q.18.Write the adjoint of A= $\begin{bmatrix} 2 & -1 \\ 4 & 3 \end{bmatrix}$

Q.19. A is a square matrix of order 3 and $|A| = 7$. Write the value of $|adj.A|$ and $|3A|$

Q.20 If A and B are matrices of order 3x4 and 4x3 respt., find the order of matrix (AB) and (BA).

Q.21. If A= $\begin{bmatrix} 3 & 1 \\ 2 & -3 \end{bmatrix}$, $then find |adj.A|$

Q.22. Write A^{-1} for A = $\begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$.

Q.23. If a matrix has 5 elements , write all possible orders it can have.

Q.24.Write the value of x-y+z from the following equation:

$$\begin{bmatrix} x+y+z \\ x+z \\ y+z \end{bmatrix} = \begin{bmatrix} 9 \\ 5 \\ 7 \end{bmatrix}$$

Q.25.Simpilify $\cos\theta \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix} + \sin\theta \begin{bmatrix} \sin\theta & -\cos\theta \\ \cos\theta & \sin\theta \end{bmatrix}$

Q.26. If $A^T = \begin{bmatrix} 3 & 4 \\ -1 & 2 \\ 0 & 1 \end{bmatrix} and B = \begin{bmatrix} -1 & 2 & 1 \\ 3 & 2 & 3 \end{bmatrix}$, find A^T-B^T.

Q.27.If $3A - B = \begin{bmatrix} 5 & 0 \\ 1 & 1 \end{bmatrix} and B = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$,find the value of matrix B .

Q.28. If matrix A= $\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$ and $A^2 = kA$, then write the value of k.

Q.29. If A is a square matrix of order 3 such that $|adj.A| = 81, find |A|$

Q.30. If A and B are symmetric matrices of same order, under what condition can you say that AB is also symmetric?