TEST - PAPER (CBSE/NCERT)

MATRIX

SESSION -2024-25

CLASS - 12th

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By. Er. Dharmendra Sir   **7974073108, 9584873492**

DPM CLASSES

6th to 10th (Math's & Science), 11th & 12th (Physics, Chemistry, Math's)
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time : 1 hr   -: Matrix :-   mm.

Q.1. If x and y are 2×2 matrix, then solve the following matrix equations for x and y

$$2x + 3y = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}, \quad 3x + 2y = \begin{bmatrix} -2 & 2 \\ 1 & -5 \end{bmatrix}$$

Q.2. If $A = [3, 5]$ and $B [7, 3]$, then find a non-zero matrix C such that $AC = BC$

Q.3. If $A = \begin{bmatrix} 0 & -1 & 2 \\ 4 & 3 & -4 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 0 \\ 1 & 3 \\ 2 & 6 \end{bmatrix}$, then verify that :

(i) $(A')' = A$ (ii) $(AB)' = B'A'$

(iii) $(KA)' = (KA')$

Q.4. If $A = \begin{bmatrix} \cos q & \sin q \\ -\sin q & \cos q \end{bmatrix}$, then show that

$$A^2 = \begin{bmatrix} \cos 2q & \sin 2q \\ -\sin 2q & \cos 2q \end{bmatrix}$$

Q.5. $A = \begin{bmatrix} 0 & -x \\ x & 0 \end{bmatrix}, B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ and $x^2 = -1$,

then show that $(A+B)^2 = A^2 + B^2$

1.

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Q.6. If $A = \begin{bmatrix} 1 & 5 \\ 7 & 12 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & 1 \\ 7 & 8 \end{bmatrix}$, Then find a matrix C such that

$3A + 5B + 2C$ is a null matrix.

Q.7. If matrix $\begin{bmatrix} 0 & a & 3 \\ 2 & b & -1 \\ c & 1 & 0 \end{bmatrix}$ is a skew-symmetric matrix, then find the values of a, b and c.

Q.8. Find x, y and z, if $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$

Satisfy $A' = A^{-1}$

2.

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