

By. Er. Dharmendra Sir

7974073108, 9584873492

# DPM CLASSES

6th to 10th (Math's & Science), 11th & 12th (Physics, Chemistry, Math's)

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**TEST - PAPER (CBSE/NCERT)**

**DETERMINANTS**

**SESSION -2024-25**

**CLASS - 12<sup>th</sup>**

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Time : 1 hr

∴ Determinants :-

mm!

Q.1. 
$$\begin{vmatrix} 3x & -x+y & -x+z \\ x-y & 3y & z-y \\ x-z & y-z & 3z \end{vmatrix}$$

Q.2. 
$$\begin{vmatrix} y^2z^2 & yz & y+z \\ z^2x^2 & zx & z+x \\ x^2y^2 & xy & x+y \end{vmatrix}$$



Q.3. If the coordinates of the vertices of an equilateral triangle with sides of length 'a' are  $(x_1, y_1)$ ,  $(x_2, y_2)$  and  $(x_3, y_3)$ , then

$$\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \frac{3a^4}{4}$$



Q.4. Find  $A^{-1}$ , if  $A = \begin{vmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{vmatrix}$  and show

$$A^{-1} = \frac{A^2 - 3I}{2}$$

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Q. 5. If  $A = \begin{vmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{vmatrix}$ , then find the value of  $A^{-1}$ . Using  $A^{-1}$ , solve the system of linear equations  $x - 2y = 10$ ,  $2x - y - z = 8$  and  $-2y + z = 7$ .

Q. 6. Using matrix method, solve the system of equations  $3x + 2y - 2z = 3$ ,  $x + 2y + 3z = 6$  and  $2x - y + z = 2$ .

Q. 7. If  $A = \begin{vmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{vmatrix}$  and  $B = \begin{vmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{vmatrix}$ , then find  $BA$  and use this to solve the system of equations  $y + 2z = 7$ ,  $x - y = 3$  and  $2x + 3y + 4z = 17$ .

Q. 8. If the area of a triangle with vertices  $(-3, 0)$ ,  $(3, 0)$  and  $(0, k)$  is 9 sq unit, then the value of  $k$  will be.

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