ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

Term : 1st

WORKSHEET-2

SUBJECT – MATHEMATICS

Chapter: MATRICES AND DETERMINANTS **Class: XII**

Topic: MATRICES **Date: 04.05.2020**

I] Choose the correct option $(1 \times 15 = 15)$

1) If $A = \begin{bmatrix} 0 & 7 \\ 0 & 0 \end{bmatrix}$ *and* $f(x) = 1 + x + x^2 + \cdots + x^{20}$ *then* $f(A) = ?$

a) $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$; b) $\begin{pmatrix} 1 & 7 \\ 0 & 0 \end{pmatrix}$; c) $\begin{pmatrix} 1 & 7 \\ 0 & 1 \end{pmatrix}$; d) $\begin{pmatrix} 0 & 7 \\ 1 & 1 \end{pmatrix}$

2) The matrix $A = \begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix}$ satisfies the equation $A^2 - 6A + 17 = 0$. Hence A^{-1} = ?

a) $\frac{1}{17}\begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix}$; b) $\frac{1}{17}\begin{bmatrix} 4 & -3 \\ 3 & -2 \end{bmatrix}$; c) $\frac{1}{17}\begin{bmatrix} 4 & 3 \\ -3 & 2 \end{bmatrix}$; d) $\frac{1}{17}\begin{bmatrix} 2 & 3 \\ 3 & 4 \end{bmatrix}$

3) If $A = \begin{bmatrix} 4 & 2 & -1 \\ 3 & -7 & 1 \end{bmatrix}$ & $B = \begin{bmatrix} 2 & 3 \\ -3 & 0 \\ -1 & 5 \end{bmatrix}$, then the value of AB ?

a) $\begin{bmatrix} 3 & -7 \\ 26 & 14 \end{bmatrix}$; b) $\begin{bmatrix} 3 & -7 \\ -26 & 14 \end{bmatrix}$; c) $\begin{bmatrix} 3 & -7 \\ 26 & -14 \end{bmatrix}$; d) $\begin{bmatrix} 3 & 7 \\ 26 & 14 \end{bmatrix}$

4) If $A = (1 \quad 2 \quad 3 \quad 4)$ & $B = \begin{pmatrix} 1 \\ 2 \\ 3 \\ 4 \end{pmatrix}$ find AB =?

a) [30] ; b) [20] ; c) 30 ; d) 20

5) Find the values of x, where $\begin{bmatrix} 1 & x & 1 \end{bmatrix} \times \begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \times \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$

a) -2 , 14 ; b) -2 , -14 ; c) 2 , 14 ; d) 2 , -14

6) Evaluate $\begin{vmatrix} 5 & 4 \\ 6 & 5 \end{vmatrix} = ?$

a) 10 ; b) -10 ; c) 1 ; d) -1

7) The value of $\begin{vmatrix} 1 & 4 & -3 \\ -4 & 1 & 2 \\ 3 & -2 & 1 \end{vmatrix}$ = ?

a) 37 ; b) -37 ; c) 30 ; d) -30

8) The value of $\begin{vmatrix} a+ib & c+id \\ -c+id & a-ib \end{vmatrix}$ = ?

a) $d^2+c^2+b^2+a^2$; b) $d^2+c^2+b^2-a^2$; c) $d^2+c^2-b^2+a^2$

d) $d^2-c^2+b^2+a^2$

9) The value of $\begin{vmatrix} \cos\alpha & \sin\beta \\ \sin\alpha & \cos\beta \end{vmatrix}$ = ? ; given that α & β are complementary angles.

a) 1 ; b) 0 ; c) $\frac{\sqrt{3}}{2}$; d) -1

10)If $\begin{vmatrix} x^2 & x & 1 \\ 0 & 2 & 1 \\ 3 & 1 & 4 \end{vmatrix} = 28$, Then the integral value of x is ?

a) 1 ; b) 2 ; c) 3 ; d) 4

11) If $\begin{bmatrix} 1 & -2 & 3 \\ 1 & 2 & 1 \\ x & 2 & -3 \end{bmatrix}$ is singular, the value of x will be -

a) -1 ; b) -2 ; c) 2 ; d) 1

12)If $A = \begin{bmatrix} 4 & -7 \\ -3 & 2 \end{bmatrix}$, then the Minor of $a_{21}(i.e.\ M_{21})$ is = ?

a) 4 ; b) -7 ; c) -3 ; d) 2

13)If $A = \begin{bmatrix} 1 & 2 & 3 \\ -3 & 2 & -1 \\ 2 & -4 & 3 \end{bmatrix}$, then the Minor of $a_{12}(i.e.\ M_{12})$ is = ?

a) 4 ; b) -7 ; c) 18 ; d) 2

14)If $A = \begin{bmatrix} 4 & -7 \\ -3 & 2 \end{bmatrix}$, then the Cofactor of $a_{12}(i.e.\ C_{12})$ is = ?

a) -4 ; b) 7 ; c) 3 ; d) -2

15)If $A = \begin{bmatrix} 1 & 2 & 3 \\ -3 & 2 & -1 \\ 2 & -4 & 3 \end{bmatrix}$, then the Cofactor of $a_{23}(i.e.\ C_{23})$ is = ?

a) 8 ; b) -8 ; c) -3 ; d) 3

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