ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

SOLUTIONS OF WORKSHEET-4

SUBJECT – MATHEMATICS

Pre-test

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

Topic: DETERMINANTS **Date: 06.05.2020**

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

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

a) 1 ; b) -1 ; **c) 0** ; d) 2

2. $\begin{vmatrix} 1 & bc & a(b+c) \\ 1 & ca & b(c+a) \\ 1 & ab & c(a+b) \end{vmatrix}$ = ?

a) 1 ; b) -1 ; c) 2 ; **d) 0**

3. $\begin{vmatrix} 1 & \omega^3 & \omega^2 \\ \omega^3 & 1 & \omega \\ \omega^2 & \omega & 1 \end{vmatrix}$ = ? , where ω is an imaginary cube root of unity.

a) 1 ; **b) 3** ; c) 0 ; d) 2

4. $\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix}$ = ? , where ω is an imaginary cube root of unity.

a) 1 ; **b) 0** ; c) 3 ; d) 2

5. $\begin{vmatrix} x+y & x & x \\ 5x+4y & 4x & 2x \\ 10x+8y & 8x & 3x \end{vmatrix} =$?

a) x^3 ; b) x^2 ; c) x ; d) 1

6. $\begin{vmatrix} y+z & z & y \\ z & z+x & x \\ y & x & x+y \end{vmatrix} = ?$

a) $3xyz$; b) $4xyz$; c) xyz ; d) $4x^2y^2z^2$

7. If $\begin{vmatrix} -a^2 & ab & ac \\ ab & -b^2 & bc \\ ac & bc & -c^2 \end{vmatrix} = \mu a^2b^2c^2$, then the value of μ is ?

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

8. $\begin{vmatrix} \log_x xyz & \log_x y & \log_x z \\ \log_y xyz & 1 & \log_y z \\ \log_z xyz & \log_z y & 1 \end{vmatrix} = ?$

a) 1 ; b) -1 ; c) 0 ; d) 2

9. If a, b, c are in $A.P.$, then $\begin{vmatrix} x+1 & x+2 & x+a \\ x+2 & x+3 & x+b \\ x+3 & x+4 & x+c \end{vmatrix} = ?$

a) 0 ; b) 1 ; c) 2 ; d) 3

10. $\begin{vmatrix} 101 & 103 & 105 \\ 104 & 105 & 106 \\ 107 & 108 & 109 \end{vmatrix} = ?$

a) -1 ; b) 0 ; c) 1 ; d) 2

11. $\begin{vmatrix} 5^2 & 5^3 & 5^4 \\ 5^3 & 5^4 & 5^5 \\ 5^8 & 5^6 & 5^7 \end{vmatrix} = ?$

a) 1 ; b) -1 ; c) 0 ; d) 2

12. If $\begin{vmatrix} a & b & ax+b \\ b & c & ax+c \\ ax+b & bx+c & 0 \end{vmatrix} = 0$, then a, b, c are in –

a) A.P. ; b) G.P. ; c) H.P. ; d) None of these.

13. $\begin{vmatrix} -1 & \cos C & \cos B \\ \cos C & -1 & \cos A \\ \cos B & \cos A & -1 \end{vmatrix} = ?$, where A, B & C are angles of a triangle .

a) 2 ; b) 1 ; c) -1 ; d) None of these

14. If $x + y + z = 0$, $then \begin{vmatrix} 1 & 1 & 1 \\ x & y & z \\ x^3 & y^3 & z^3 \end{vmatrix} = ?$

a) 2 ; b) 1 ; c) 0 ; d) None of these

15. $if \begin{vmatrix} x-2 & 2x-3 & 3x-4 \\ x-4 & 2x-9 & 3x-16 \\ x-8 & 2x-27 & 3x-64 \end{vmatrix} = 0$, $then\ x = ?$

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

- Prepared by

Mr. SUKUMAR MANDAL (SkM)