

# Assignment 2

## Chapter-15:

## Matrices and Determinants

EE24BTECH11049  
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- 1) If  $a > 0$  and discriminant of  $ax^2 + 2bx + c$  is -ve, then  $\begin{vmatrix} a & b & ax+b \\ b & c & bx+c \\ ax+b & bx+c & 0 \end{vmatrix}$  is equal to

[2002]

- a) +ve  
b)  $(ac - b^2)(ax^2 + 2bx + c)$   
c) -ve  
d) 0
- 2) If the system of linear equations  $x + 2ay + az = 0$ ;  $x + 3by + bz = 0$ ;  $x + 4cy + cz = 0$ ; has a non-zero solution, then a,b,c.

[2003]

- a) satisfy  $a + 2b + 3c = 0$   
b) are in A.P  
c) are in G.P  
d) are in H.P

- 3) If  $1, \omega, \omega^2$  are the cube roots of unity, then  $\Delta = \begin{vmatrix} 1 & \omega^n & \omega^{2n} \\ \omega^n & \omega^{2n} & 1 \\ \omega^{2n} & 1 & \omega^n \end{vmatrix}$  is equal to

[2003]

- a)  $\omega^2$   
b) 0  
c) 1  
d)  $\omega$

- 4) If  $A = \begin{pmatrix} a & b \\ b & a \end{pmatrix}$  and  $A^2 = \begin{pmatrix} \alpha & \beta \\ \beta & \alpha \end{pmatrix}$ , then

[2003]

- a)  $\alpha = 2ab, \beta = a^2 + b^2$   
b)  $\alpha = a^2 + b^2, \beta = ab$   
c)  $\alpha = a^2 + b^2, \beta = 2ab$   
d)  $\alpha = a^2 + b^2, \beta = a^2 - b^2$