Assignment 3
Chapter-15:
Matrices and Determinants

EE24BTECH11049
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1) If $a > 0$ and discriminant of $a.x^2 + 2.b.x + c$ 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) $\left(ac - b^2\right)\left(ax^2 + 2bx + c\right)$
(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, ω, ω^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) ω^2
(b) 0
(c) 1
(d) ω

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