Determinants - Class XII

Related Questions with Solutions

Questions

Quetion: 01

The value of the determinant $\Delta = \begin{vmatrix} 1^2 & 2^2 & 3^2 & 4^2 \\ 2^2 & 3^2 & 4^2 & 5^2 \\ 3^2 & 4^2 & 5^2 & 6^2 \\ 4^2 & 5^2 & 6^2 & 7^2 \end{vmatrix}$ is equal to

A. 1
B. 0
C. 2
D. 3

Solutions

Solution: 01

$$\Delta = \begin{vmatrix} 1 & 4 & 9 & 16 \\ 4 & 9 & 16 & 25 \\ 9 & 16 & 25 & 36 \\ 16 & 25 & 36 & 49 \end{vmatrix} (\mathrm{R}_3 \to \mathrm{R}_3 - \mathrm{R}_2, \mathrm{R}_4 \to \mathrm{R}_4 - \mathrm{R}_1)$$

$$= \begin{vmatrix} 1 & 4 & 9 & 16 \\ 4 & 9 & 16 & 25 \\ 5 & 7 & 9 & 11 \\ 15 & 21 & 27 & 33 \end{vmatrix}$$

$$= 3 \begin{vmatrix} 1 & 4 & 9 & 16 \\ 4 & 9 & 16 & 25 \\ 5 & 7 & 9 & 11 \\ 5 & 7 & 9 & 11 \end{vmatrix} = 0 \quad (R_4 \to R_4 - R_3)$$

Correct Options

Answer:01
Correct Options: B