Determinants - Class XII

Related Questions with Solutions

Questions

Quetion: 01

If $f(x) = \begin{vmatrix} 1 & x & x+1 \\ 2x & x(x-1) & (x+1)x \\ 3x(x-1) & x(x-1)(x-2) & (x+1)x(x-1) \end{vmatrix}$, then $f(100)$ is equal to

A. 0
B. 1
C. 100
D. -100

Solutions

Solution: 01

We have

$$f(x) = x(x+1)(x-1)\begin{vmatrix} 1 & 1 & 1 \\ 2x & x-1 & x \\ 3x & x-2 & x \end{vmatrix}$$

$$= x(x+1)(x-1)\begin{vmatrix} 1 & 1 & 1 \\ 2x & x-1 & x \\ 3x & x-2 & x \end{vmatrix} \quad [C_1 \to C_1 - C_3 \text{ and } C_2 \to C_2 - C_3] = 0$$

Hence, $f(100) = 0$

Correct Options

Answer:01
Correct Options: A