# Matrices - Class XII

## Past Year JEE Questions

### Questions

**Quetion: 01**

If the following system of linear equations

2x + y + z = 5

x − y + z = 3

x + y + az = b

has no solution, then :

A. $a = -\frac{1}{3}, b \neq \frac{7}{3}$

B. $a \neq \frac{1}{3}, b = \frac{7}{3}$

C. $a \neq -\frac{1}{3}, b = \frac{7}{3}$

D. $a = \frac{1}{3}, b \neq \frac{7}{3}$

### Solutions

**Solution: 01**

#### Explanation

Here $D = \begin{vmatrix} 2 & 1 & 1 \\ 1 & -1 & 1 \\ 1 & 1 & a \end{vmatrix} = 2(a-1) - 1(a-1) + 1 + 1$
$= 1 - 3a$

$D3 = \begin{vmatrix} 2 & 1 & 5 \\ 1 & -1 & 3 \\ 1 & 1 & b \end{vmatrix} = 2(-b-3) - 1(b-3) + 5(1+1)$
$= 7 - 3b$

for $a = \frac{1}{3}, b \neq \frac{7}{3}$, system has no solutions.