Three Dimensional Geometry - Class XII

Past Year JEE Questions

Questions

Quetion: 01

The distance of the point (1, 3, – 7) from the plane passing through the point (1, –1, – 1), having normal perpendicular to both the lines

$\frac{x-1}{1}=\frac{y+2}{-2}=\frac{z-4}{3}$

and

$\frac{x-2}{2}=\frac{y+1}{-1}=\frac{z+7}{-1}$ is

A. $\frac{10}{\sqrt{83}}$

B. $\frac{5}{\sqrt{83}}$

C. $\frac{10}{\sqrt{74}}$

D. $\frac{20}{\sqrt{74}}$

Solutions

Solution: 01

Explanation

Let the plane be

a(x – 1) + b(y + 1) + c (z + 1) = 0

Normal vector

$$\begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 1 & -2 & 3 \\ 2 & -1 & -1 \end{vmatrix} = 5\hat{i} + 7\hat{j} + 3\hat{k}$$

So plane is 5(x – 1) + 7(y + 1) + 3(z + 1) = 0

$\Rightarrow$ 5x + 7y + 3z + 5 = 0

Distance of point (1, 3, – 7) from the plane is

$\frac{5+21-21+5}{\sqrt{25+49+9}}\frac{10}{\sqrt{83}}$