Related Questions with Solutions

Questions

Quetion: 01

The values of θ, λ for which the following equations
$\sin \theta x - \cos \theta y + (\lambda+1)z = 0; \cos \theta x + \sin \theta y - \lambda z = 0; \lambda x + (\lambda+1)y + \cos \theta z = 0$
have non trivial solution, is

A. $2n\pi \forall n \in I$

B. $n\pi \forall n \in I$

C. $(2n + 1)\dfrac{\pi}{2} \forall n \in I$

D. No value possible

Solutions

Solution: 01

For non trivial solution $\begin{vmatrix} \sin \theta & -\cos \theta & \lambda + 1 \\ \cos \theta & \sin \theta & -\lambda \\ \lambda & \lambda + 1 & \cos \theta \end{vmatrix} = 0;$ this gives

$2 \cos \theta \left(\lambda^2 + \lambda + 1 \right) = 0$

Correct Options

Answer:01
Correct Options: C