The system of linear equations $x+\lambda y-z=0$ $\lambda x-y-z=0$ $x+y-\lambda z=0$ has a non-trivial solution for: (1) infinitely many values of λ. (2) exactly one value of λ. (3) exactly two values of λ. (4) exactly three values of λ. Based on JEE Main 2016 123IITJEE.COM	For non-trivial solution, $\begin{vmatrix}1 & \lambda & -1\\ \lambda & -1 & -1\\ 1 & 1 & -\lambda\end{vmatrix}=0$ $\therefore \begin{vmatrix}1 & \lambda+1 & -1\\ \lambda & 0 & -1\\ 1 & 1+\lambda & -\lambda\end{vmatrix}_{C_2\to C_2-C_3}=0$ $\therefore (\lambda+1)\begin{vmatrix}1 & 1 & -1\\ \lambda & 0 & -1\\ 1 & 1 & -\lambda\end{vmatrix}=0$ $\therefore (\lambda+1)\begin{vmatrix}0 & 0 & \lambda-1\\ \lambda & 0 & -1\\ 1 & 1 & -\lambda\end{vmatrix}_{R_1\to R_1-R_3}=0$ $\therefore (\lambda+1)(\lambda-1)\begin{vmatrix}\lambda & 0\\ 1 & 1\end{vmatrix}_{\text{Expanding about } R_1}=0$ $\therefore (\lambda+1)(\lambda-1)\lambda=0$ $\therefore \lambda=-1,0,1$ Hence, Option (4).