2) If $\begin{vmatrix} 6i & -3i & 1 \\ 4 & 3i & -1 \\ 20 & 3 & i \end{vmatrix} = x+iy$, then [1998, 2 Marks]

a) $x=3, y=1$ b) $x=1, y=3$ c) $x=0, y=3$ d) $x=0, y=0$

Solution: d) $\begin{vmatrix} 6i & -3i & 1 \\ 4 & 3i & -1 \\ 20 & 3 & i \end{vmatrix} = x+iy$

$\Rightarrow -3i \begin{vmatrix} 6i & 1 & 1 \\ 4 & -1 & -1 \\ 20 & i & i \end{vmatrix} = x+iy$

[$\because C_2$ and C_3 are identical]

$\Rightarrow 0 = x+iy$

$\therefore x=0, y=0$