(a) : For infinitely many solutions, we have

$$\Delta = \begin{vmatrix} 1 & 1 & 2 \\ 2 & 3 & a \\ -1 & -3 & b \end{vmatrix} = 0 \Rightarrow \quad 2a + b - 6 = 0 \qquad \ldots(i)$$

$$\text{Also, } \Delta_3 = \begin{vmatrix} 1 & 1 & 6 \\ 2 & 3 & a+1 \\ -1 & -3 & 2b \end{vmatrix} = 0 \Rightarrow \; a + b - 8 = 0 \qquad \ldots(ii)$$

Solving (i) and (ii), we get $a = -2$, $b = 10$

$\therefore \; 7a + 3b = 7(-2) + 3(10) = 16$