Since $\{v_1, v_2, v_3\}$ are L.I

$$\Rightarrow x\begin{bmatrix}1\\2\\0\end{bmatrix} + y\begin{bmatrix}1\\a\\5\end{bmatrix} + z\begin{bmatrix}0\\4\\b\end{bmatrix} = \begin{bmatrix}0\\0\\0\end{bmatrix}$$

$$x + y = 0 \quad \Rightarrow \boxed{y = -x}$$

$$2x + ay + 4z = 0$$

$$5y + bz = 0$$

$$\Rightarrow -5x + bz = 0 \Rightarrow \boxed{z = \frac{5x}{b}}$$

put

$$2x - ax + 4\left(\frac{5x}{b}\right) = 0$$

$$x\left(2 - a + \frac{20}{b}\right) = 0$$

$$b(2-a) = -20$$

$$\boxed{b(a-2) = 20}$$

$$\boxed{\text{Answer} = 20}$$ Ans