$\begin{pmatrix} 2 & 5 & -3 & g \\ 4 & 7 & -4 & h \\ -6 & -3 & 1 & k \end{pmatrix}$,then the Corresponding system of equations would be

$$2x + 5y - 3z = g$$
$$4x + 7y - 4z = h$$
$$z - 3y - 6x = k$$

But we will deal with the already given augmented matrix and will apply the elementary row operations on this as follows;

By $R_2^{'} \longrightarrow R_2 - 2R_1, R_3^{'} \longrightarrow R_3 + 3R_1$

$$\begin{pmatrix} 2 & 5 & -3 & g \\ 0 & -3 & 2 & h - 2g \\ 0 & 12 & -8 & 3g + k \end{pmatrix}$$

By $R_3^{'} \longrightarrow R_3 + 4R_2$

$$\begin{pmatrix} 2 & 5 & -3 & g \\ 0 & -3 & 2 & h - 2g \\ 0 & 0 & 0 & 4h - 5g + k \end{pmatrix},$$

Now the corresponding system of equation will become;

$$2x + 5y - 3z = g$$
$$2z - 3y = h - 2g$$
$$0 = 4h - 5g + k$$

So the last equation $\Longrightarrow$ as the LHS is zero, so the consistency of the system demands that RHS should also be zero.

$\therefore$ $4h - 5g + k = 0$ is the required equation(condition) under which the system will have a solution.