SATISH KUMAR

Exercise 6

1) Let $f(v_1) = v_2 + v_3$

$f(v_2) = v_1 + v_3$

$f(v_3) = v_1 + v_2$

The matrix is

$$\begin{pmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{pmatrix} = C^T$$

2) $f(v_1) = v_1$

$f(v_2) = v_2$

$f(v_3) = v_3$

The matrix is

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} = C^T$$

(3) $f(v_1) = v_1 + v_2 + v_3$

$f(v_2) = v_2 + v_3$

$f(v_3) = v_3$

The matrix is

$$\begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1 & 1 & 1 \end{pmatrix} = C^T$$