6.6 a) The sets of nodes are

N_1: {1, 3, 5, 7, 8}, N_2: {2, 6}, and N_3: {4}

The precedence graph for the multiplications has to sets. In the first set belongs

N_1: $\{a_1, a_2, a_3, a_4, b_1, b_2, b_3\}$

and in the second set

N_2: $\{c_1, c_2\}$.

The multiplier c_1 shall precede a_2 and b_1 while c_2 shall precede a_3, a_4, b_2, and b_3.

b) The set of difference equations in computable order is

$$u_2 := a_2\, v_1(n) + b_1\, v_3(n)$$
$$u_6 := a_3\, v_1(n) + a_4\, v_5(n) + b_2\, v_7(n) + b_3\, v_8(n)$$
$$y(n) = v_4(n) := a_1\, v_1(n) + c_1\, u_2 + c_2\, u_6$$
$$v_8(n) := v_7(n{-}1)$$
$$v_7(n) := u_6$$
$$v_3(n) := u_2$$
$$v_5(n) := v_1(n) \quad \text{where } v_1(n) = x(n).$$

c)