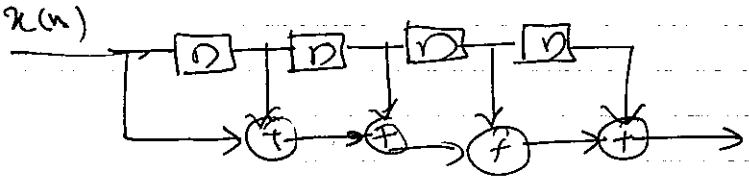
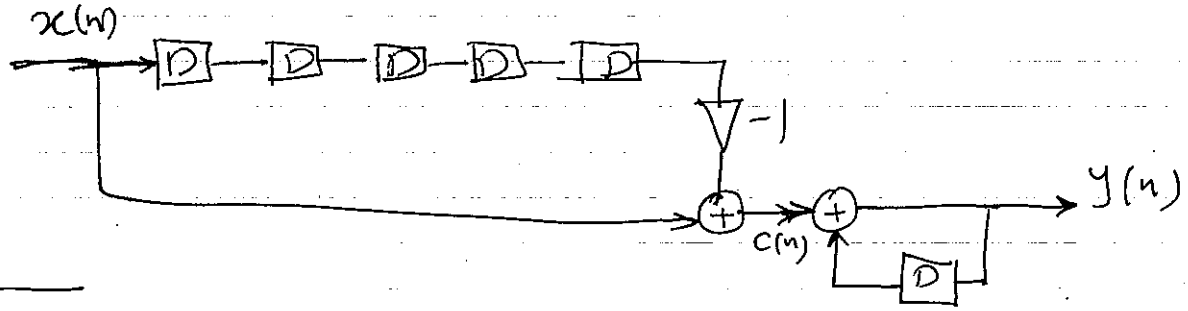
No.

Date

1.12

Show that both of the following circuits are equal (having the same diffence equation).





for first one we have:

$$y(n) = x(n)+x(n-1)+x(n-2)+x(n-3)+x(n-4)$$
$$= \sum_{K=0}^{4} x(n-K)$$

for second:

$$\begin{cases} C(n) = x(n) - x(n-5) \\ y(n) = C(n) + y(n-1) \end{cases}$$

$$y(n-1) = C(n-1) + y(n-2)$$
$$y(n-2) = C(n-2) + y(n-3)$$
$$y(0) = C(0) + y(-1)$$

$(y(-1) = 0)$

$$y(n) = \sum_{i=0}^{n} C(i)$$

$$y(n) = \sum_{i=0}^{n} x(i) - x(i-5)$$
$$= x(n)+x(n-1)+x(n-2)+x(n-3)+x(n-4)$$
$$+ x(n-5)+\cdots+x(1)+x(0)$$
$$-[x(n-5)+\cdots+x(1)+x(0)]$$
$$= \sum_{K=0}^{4} x(n-k)$$

Then two ciraits are equal.