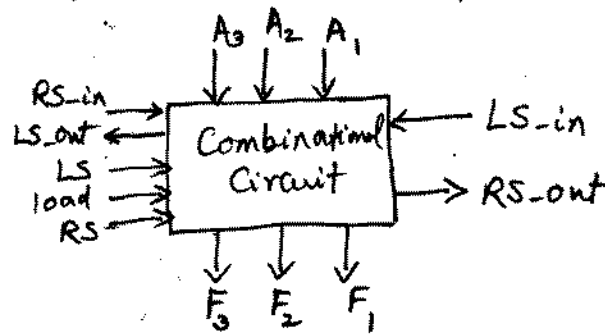
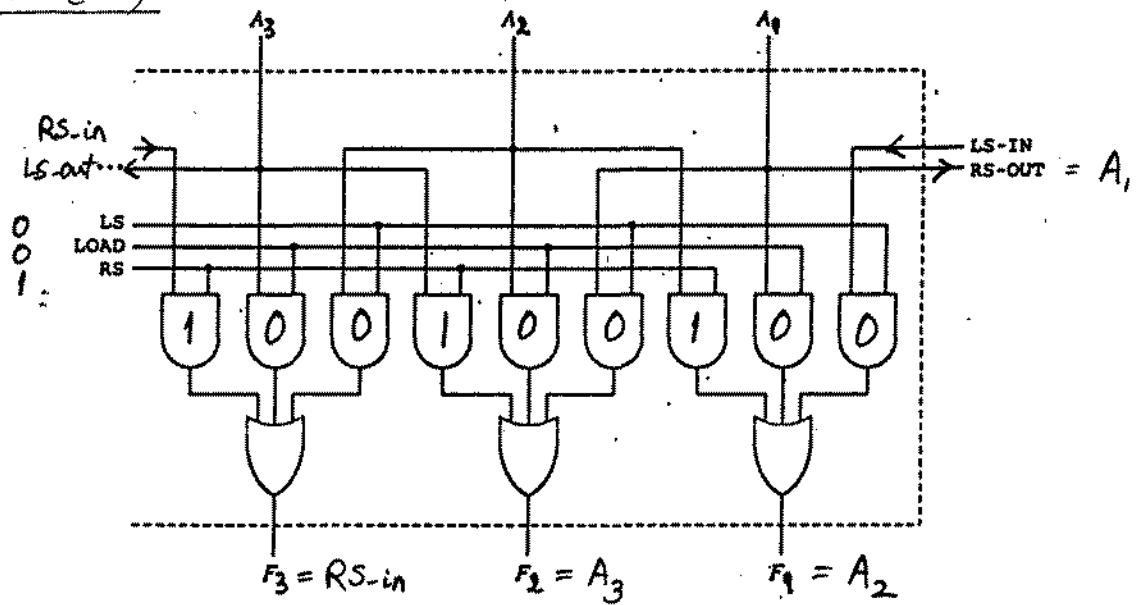


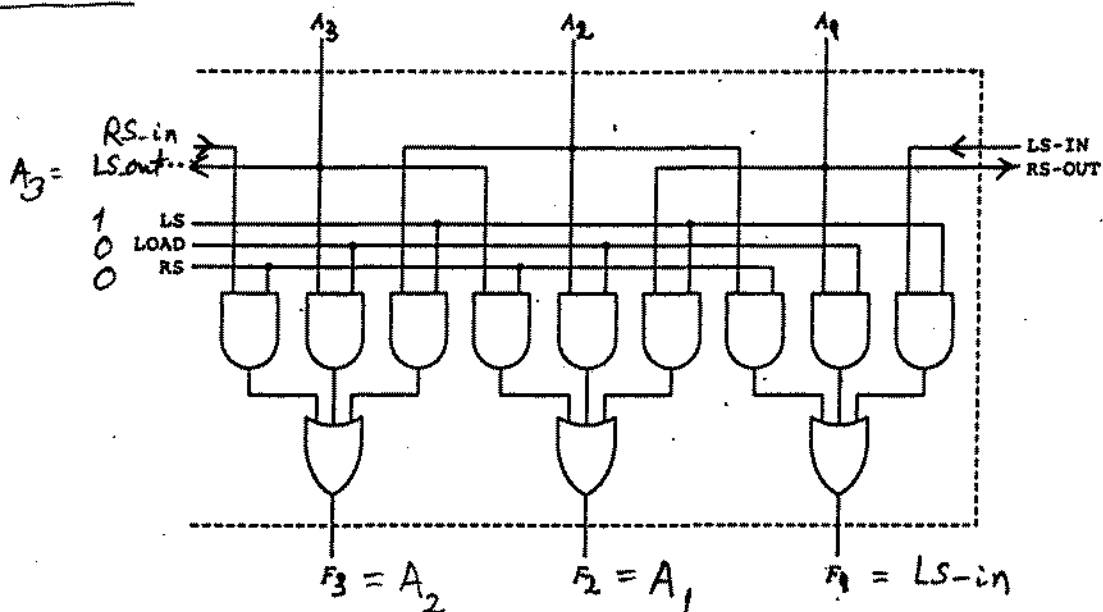
Shifts or rotates input data bits by the number of bit positions specified by a binary value on a set of selection lines.



Right Shift (RS)



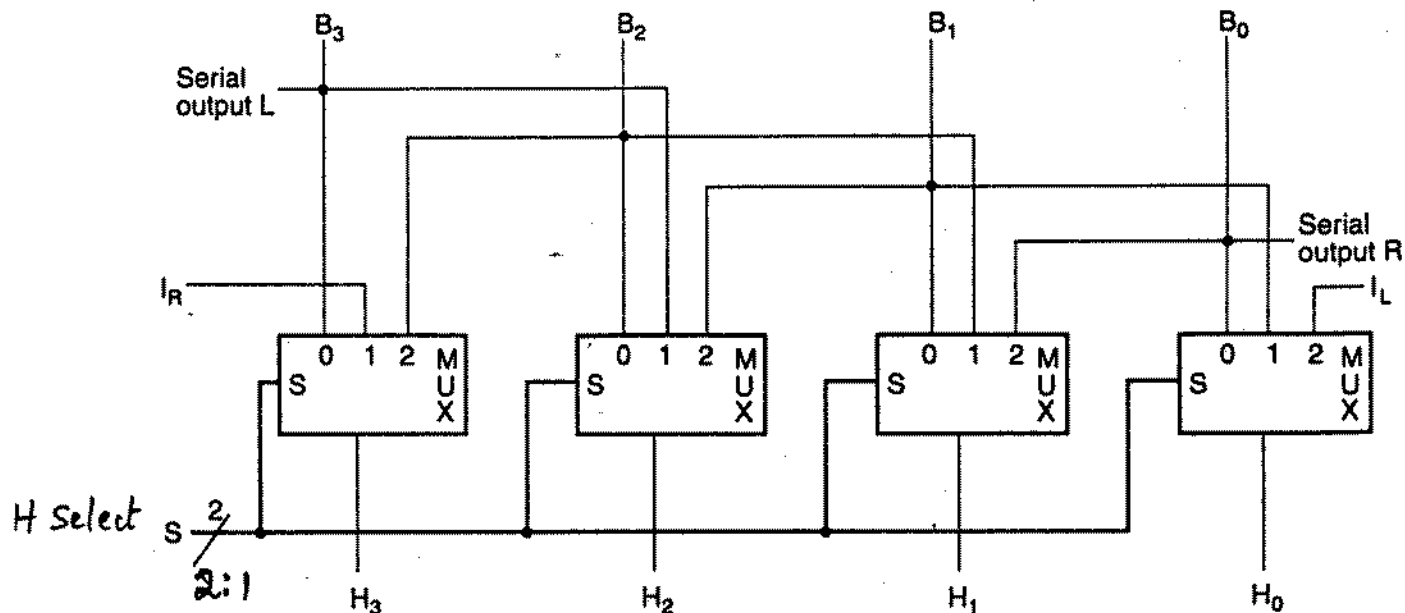
Left Shift (LS)



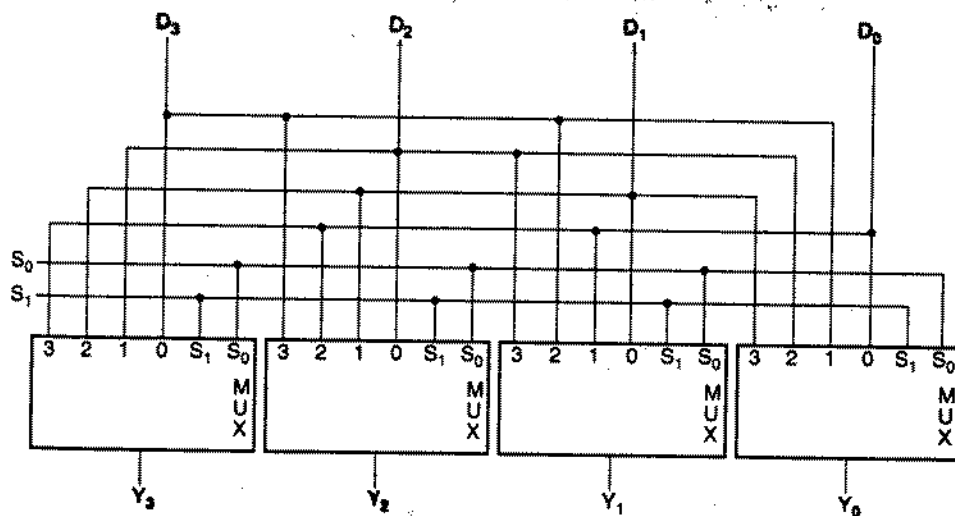
$$H \text{ select} = S_{2:1} = \begin{array}{cc} S_2 & S_1 \\ 0 & 0 \\ 0 & 1 \\ 1 & 0 \end{array}$$

Operation

No shift $H_3 H_2 H_1 H_0 = B_3 B_2 B_1 B_0$ 78
 Shift Right $H_3 H_2 H_1 H_0 = I_R B_3 B_2 B_1$
 Shift Left $H_3 H_2 H_1 H_0 = B_2 B_1 B_0 I_L$



4 bit Basic shifter



4-bit Barrel shifter

$$S_1 \ S_0$$

0	0
0	1
1	0
1	1

operation

No shift

Rotate one position

Rotate two positions

Rotate Three positions

$$Y_3 Y_2 Y_1 Y_0 = D_3 D_2 D_1 D_0$$

$$Y_3 Y_2 Y_1 Y_0 = D_2 D_1 D_0 D_3$$

$$Y_3 Y_2 Y_1 Y_0 = D_1 D_0 D_3 D_2$$

$$Y_3 Y_2 Y_1 Y_0 = D_0 D_3 D_2 D_1$$