Section - 05

Q.1 Ans

A shift register than can shift the data in both the directions as well as load it parallely, it is called as a universal shift register.

(2) The shif register is capable of performing the following operations:-

(i) Parallel loading.
(ii) Left shifting.
(iii) Right shifting.

(3) The block diagram of a 4-bit universal shift register is shown.

(4) The multiplexers have to common select lines S_1 and S_0. Input I_0 in each multiplexer is selected when $S_1 S_0 = 00$.

(5) The selection inputs (S_1, S_0) controls the mode of operation of the register according to the function table shown.

S_1	S_0	Function
0	0	Hold
0	1	shif Right
1	0	shift left
1	1	Load

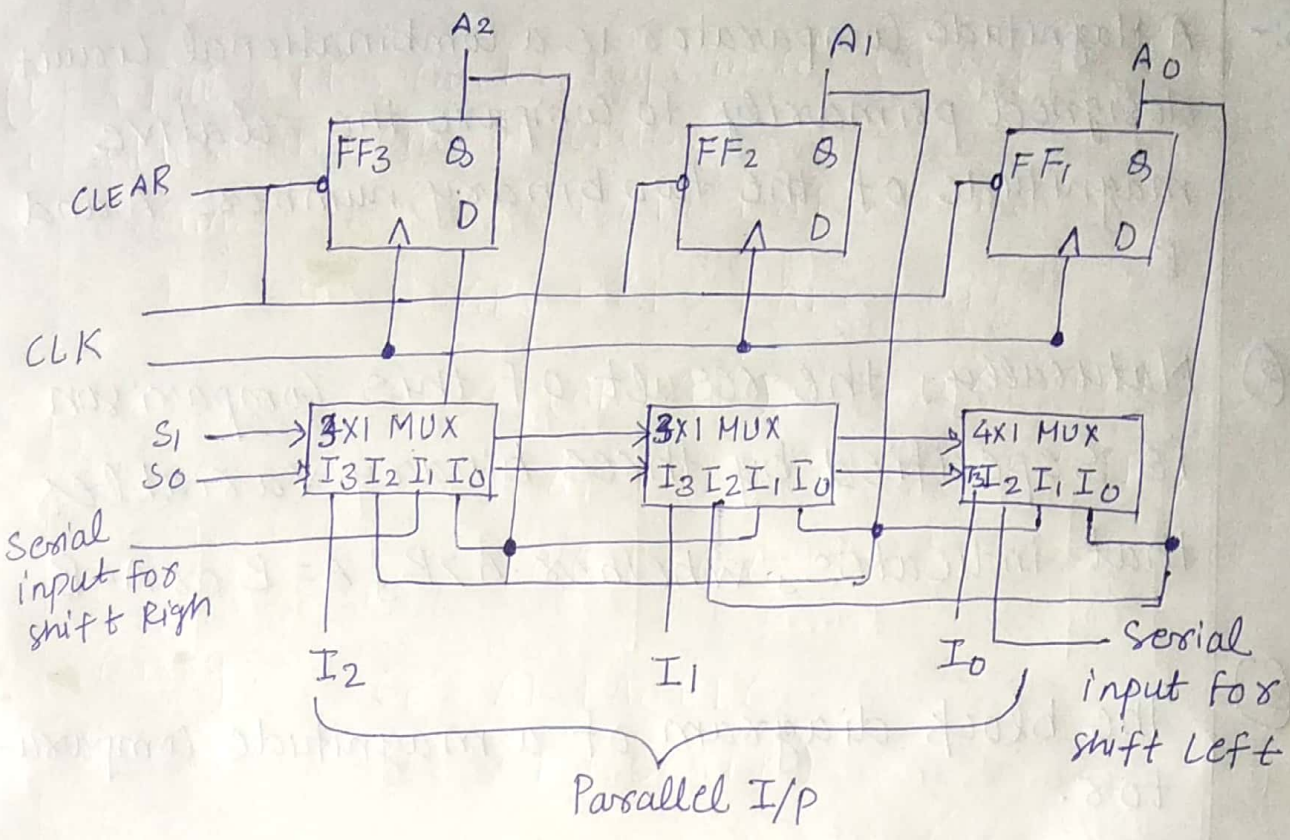

diagram:- universal shift Register.

Operations:-

(1) when $S_1S_0 = 01$, the input I_1 of the Mutiplexer has a path to the D inputs of the flip flops. this causes a shift right operation, with the Serial input transferred in flip flop FF_4.

(2) when $S_1S_0 = 11$, the binary information on the parallel input lines is transferred into the register simultaneously during the next clock edge.