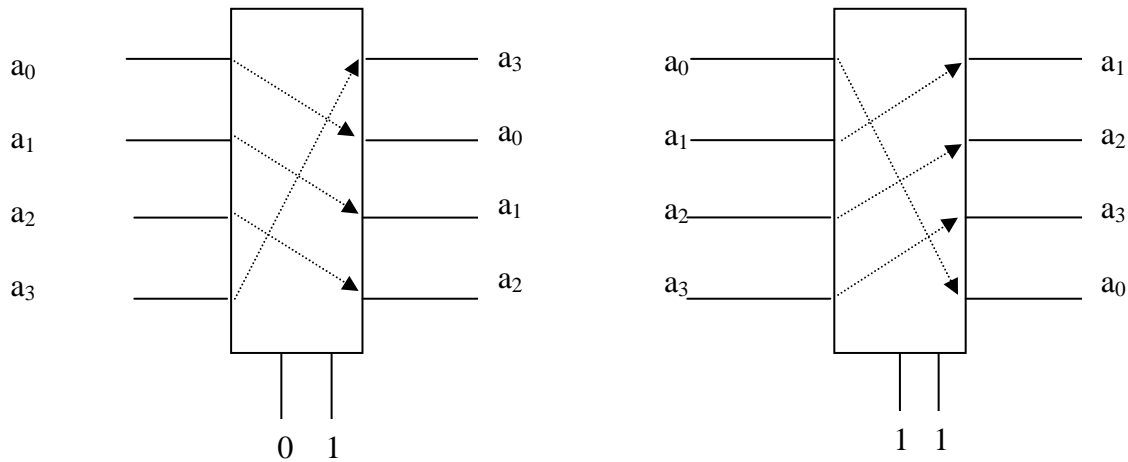


Dept. of Computer Science and Engineering  
CSE3201 – Digital Logic Design  
Lab 6

**Design an 8-bit barrel shifter.**

Barrel shifter is a combinational circuit with n-bit output, n-bit input, and logn-bit selection (also input). The circuit shifts the input by the number binary number represented by the selection bits.



For example the first barrel shifter shifts the inputs by 1 (01), so the sequence a<sub>0</sub> a<sub>1</sub> a<sub>2</sub> a<sub>3</sub> becomes a<sub>3</sub> a<sub>0</sub> a<sub>1</sub> a<sub>2</sub> (the bits are shifted by 1, the last bit is rotated to be the first bit). The second shift barrel shifts by 3 (11).

You can use decoders, encoders, multiplexers, demultiplexers in your design, or you can do it from the truth table (very messy).

**Pre-Lab Work**

Complete your design including a schematic diagram for the circuits and Verilog code, show the program and the circuit to the TA before starting

**Lab report**

See the guidelines for the lab report on the Lab section of the course web page.