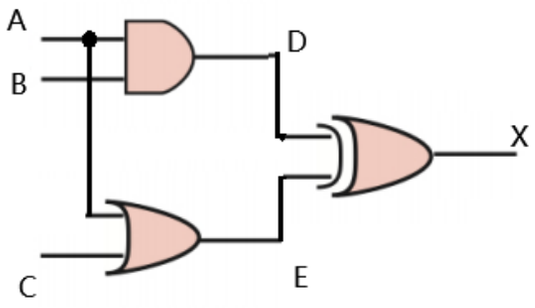
Assignment 6

1. Fill in the truth table of the combinational circuit below. [3 points]



A	B	C	D	E	X
0	0	0	0	0	0
0	0	1	0	1	1
0	1	0	0	0	0
0	1	1	0	1	1
1	0	0	0	1	1
1	0	1	0	1	1
1	1	0	1	1	0
1	1	1	1	1	0

2. If the power of the computer is suddenly cut off while it is working, the data in BCD will be lost. (multiple choices) [2 points]

   A. ROM B. SRAM C. DRAM D. Register

   E. Magnetic disk F. Compact disk

3. Suppose a depth camera has a storage capacity of 256 Gigabyte. How many photographs could be stored in the camera if each consisted of 2048 pixels per row and 2048 pixels per column if each pixel required four bytes (RGBD) of storage? [3 points]

For a photo: $2^{11} \times 2^{11} \times 4 = 2^{24}$

the number of storage photo: $256 \times 2^{33} \div 2^{24} = 128$

4. What are the value of the most significant bit and the least significant bit in the organization of a byte-size memory cell represented by the following decimal notations? [2 points]

   a. 138

   b. 60

a. $(138)_{10} = (10000000)_2$

the most significant bit: 1
the least significant bit:0

b. $(60)_{10} = (00111100)_2$

the most significant bit:0
the least significant bit:0