**Computer Logic Design (E & F) – Spring 2017**

**Assignment – 2(a)**

**Deadline: Tuesday February 14, 2016** (submission in class)

**Total Marks = 10 (Assignment Submission = 2 Marks + Assignment Quiz = 8 Marks)**

**Question 1:** Ideal Toy Company has to develop a new toy “Magic-Bulb”. Magic-Bulb is a box having 8 buttons and 8 bulbs on it. Buttons are associated with numbers 0 to 7 (i.e. 1 number written on 1 button). For any number pressed by user Magic-Bulb turns a specific bulb on. Bulbs “Green”, “Yellow”, “Pink”, “Orange”, “Red”, “Purple”, ”Blue” and ”White” are associated with numbers 0, 1, 2, 3, 4, 5, 6 and 7 respectively. Your task is to design Logic diagram for Magic-Bulb’s circuit using the concepts studied so far.

1. Make truth table for Magic-Bulb
2. Write functions equations using AND and NOT operations only
3. Write functions equations using OR and NOT operations only
4. Draw logic circuit diagram for part b
5. Draw logic circuit diagram for part c
6. Are these single-output circuits or multiple-output circuits?

(Hint: Think of input as binary equivalent of decimal number pressed.)

**Practice Questions**

**Note:** These questions are only for your practice these are not included in your assignment.

Chapter 2 exercises 2-8, 2-9, 2-10, 2-11(a-d), 2-13