ECE-249

Basic Electrical and Electronics Engineering

CA2: Assignment (Simulation based)

Guidelines:

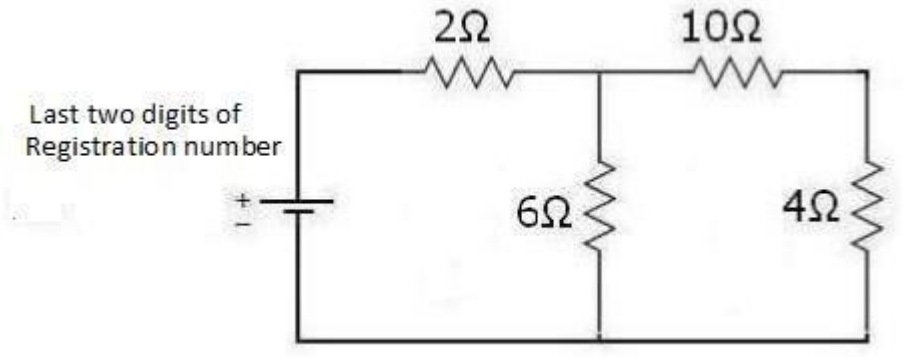
1. Student will take snapshot of proteus design in running mode and mentioned his/her detailed on the Proteus screen like name, registration no. and roll no.
2. Student needs to upload a single pdf file that is having all snapshots.
3. Last date to upload the assignment on UMS (mandatory) is **14th November.**
4. Assignment submission will not be consider through LPU Live or email or hard copy.
5. Total Marks-30 and each question carry equal marks.

Assignment Question:

Q1. Apply the Thevenin and Norton theorem to find the value of Current across 4 Ohm, if the input applied voltage is the last two digits of your registration number.

**Verify the simulation result with theoretical result.

** (Example: If your registration is 12315216 then Input supply is 16 V and if last two digit is zero then Input supply is 10 V.



Q2. Implementation of a Boolean function using 4:1 multiplexer on proteus software. The Minterms will be implementation of Decimal to octal conversion of your registration number.

****For example:** if your registration is $(12315532)_{10}$ (assume it is in decimal) and the octal conversion of this is $(56765614)_{8.}$ Then you need to implement last 4

digit start from LSB. Now you need to implement 5614 according to example given. So, implement $\mathbf{F}\ (\mathbf{A}, \mathbf{B}, \mathbf{C}) = \sum(\mathbf{1}, \mathbf{4}, \mathbf{5}, \mathbf{6})$ using 4:1 Multiplexer.

***Also implementing number does not repeat twice. For example registration is 12315534, and octal conversion will be 56765616. In this case 6 is repeating twice. So, you need to take the next MSB, like 7, 5,1, 6. Implement $\mathbf{F}\ (\mathbf{A}, \mathbf{B}, \mathbf{C}) = \sum(\mathbf{1}, \mathbf{5}, \mathbf{6}, \mathbf{7})$ using 4:1 Multiplexer.

Q.3. Interfacing of IR sensor with an Arduino on Proteus.

Note: You need to connect IR sensor on pin no. (Last digit of your registration no. and LED will be connected on pin no. 10).

**For example- if your registration no is 12315532, IR sensor will be connected on pin no. 2. If according to registration number last digit is 0 or 1 then consider input of IR to pin no. 5.

***Display your name and registration on virtual screen if obstacle detected otherwise display your roll number.