Electrical Circuits I Laboratory

EEE 101L

Department of Electrical & Electronic Engineering (EEE)

Brac University

Project

Total Marks: 25 ***Time: 2 Weeks***

1. **Objective:** Design a circuit which will give a fluctuating DC Output voltage for an Input Square Wave.

2. **Problem Statement:** You will have a square wave as your source voltage where the square wave will have a Peak Amplitude of (19+G) V and Minimum Amplitude as 0 V with a frequency of (20xG) Hz. Where G is your Group Number. The output voltage is across a capacitor which will fluctuate. Besides, the driving voltage of the capacitor should be another square wave having a Peak Amplitude of 10 V and Minimum Amplitude as 0 V with the same frequency. The time constant is 1ms. Now, design the whole circuit. Show the input/output graph in PSpice for the first 10 cycles.

3. **Submission Guidelines:**
   One group should submit one simulation (.sch) file and one report (.pdf) file. The report must contain the following:
   1. Cover Page
   2. Objective (write the problem statement here)
   3. Design (detailed calculation of values for all the selected components) (explain how you are getting the driving voltage of the capacitor from the source voltage. Hint: Show that Thevenin equivalent circuit from the source voltage gives the driving voltage of the capacitor where the capacitor is acting as load.)
   4. PSpice Circuit Diagram
   5. Input / Output Waveforms

4. **Marks Distribution:**

Design	10
PSpice Circuit Diagram	10
Input / Output Waveforms	5
Total	25