21AIE113- INTRODUCTION TO ELECTRONICS

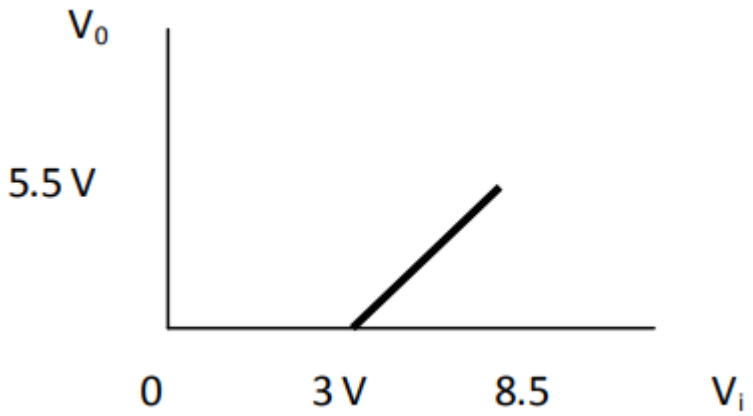
Group Assignment 3

Submission Date: 08/05/2022, 11.59 PM

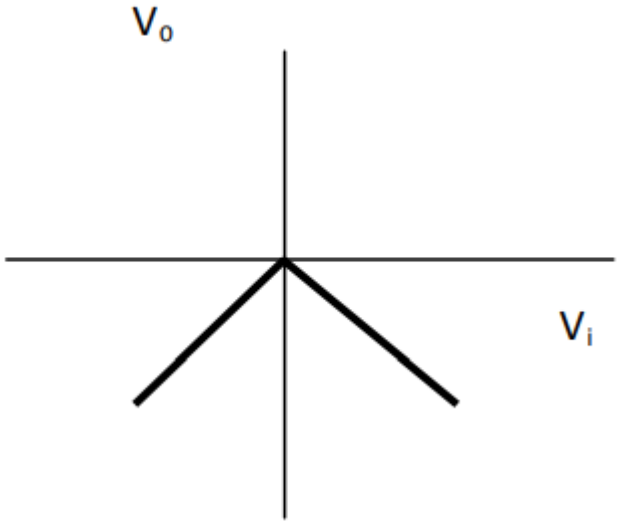
Submission link: Assignment 3

Answer all Questions
One submission per group
Submission format – doc,pdf

1. Perform the experiment for demonstrating the application of a diode as a Full-wave rectifier in Falstad circuit simulator
    a) Explain the theory behind the experiment.
    b) Draw the circuit diagrams, Mention the components used, and state the procedure of the experiment.
    c) Plot the input and output waveforms.
    d) Compute/obtain the value of Vm, Vrms, Vdc, and ripple factor.
    e) Redo the experiment using a capacitive filter and plot the input and output waveforms
    f) Compute/obtain the value of Vm,Vrpp, V r,rms, Vdc, and ripple factor.
    g) Repeat (a) to (f) for center-tapped Full wave rectifier.
2. Design a circuit to obtain the following transfer characteristic. Plot the input and output waveforms using Falstad circuit simulator.
   [Hint: Half-wave rectifier and DC source]



3. Obtain the following transfer characteristics. Plot the input and output waveforms using Falstad circuit simulator.



4. Design and study the following shunt clippers using diodes in the Falstad circuit simulator. Explain the working of the circuit diagram and plot the input and output waveforms.
    a) Positive clipper clipping at +3 V
    b) Negative clipper clipping at -3 V
    c) Slicer slicing at -3 V and -5 V
    d) Double clipper clipping at +3V and -5V