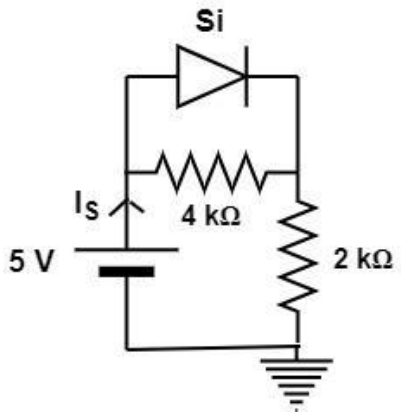
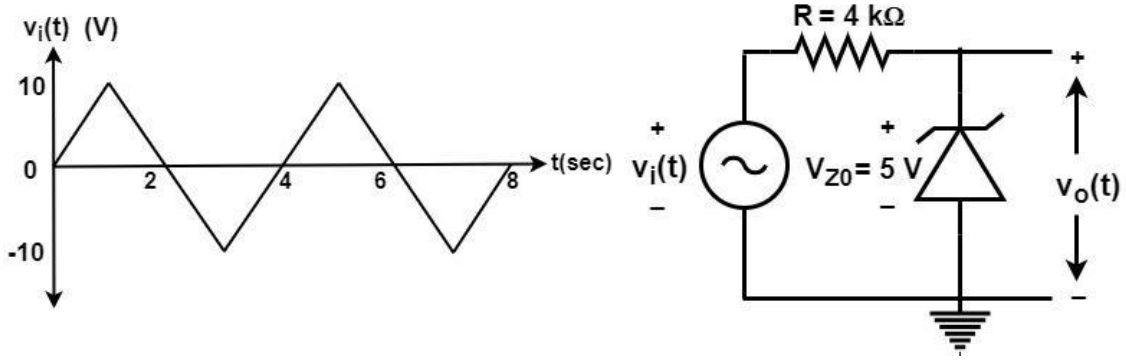
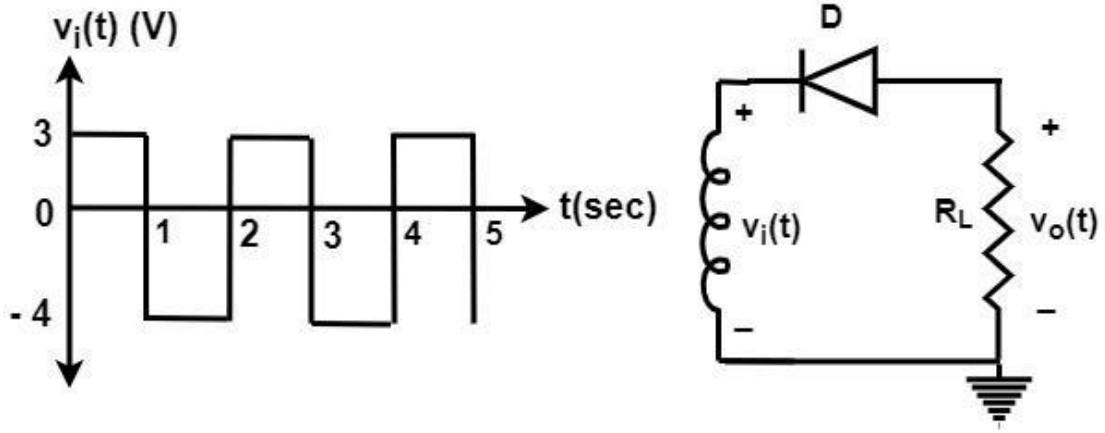
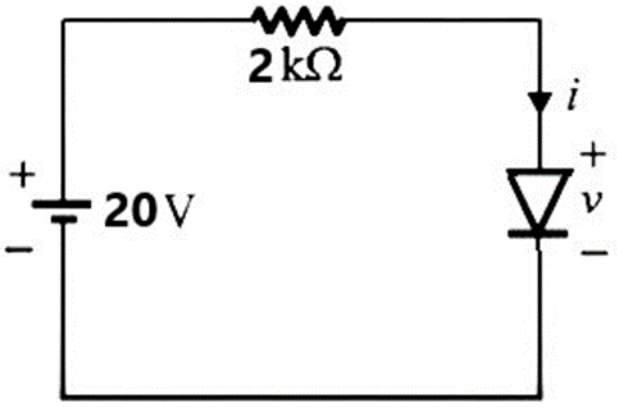
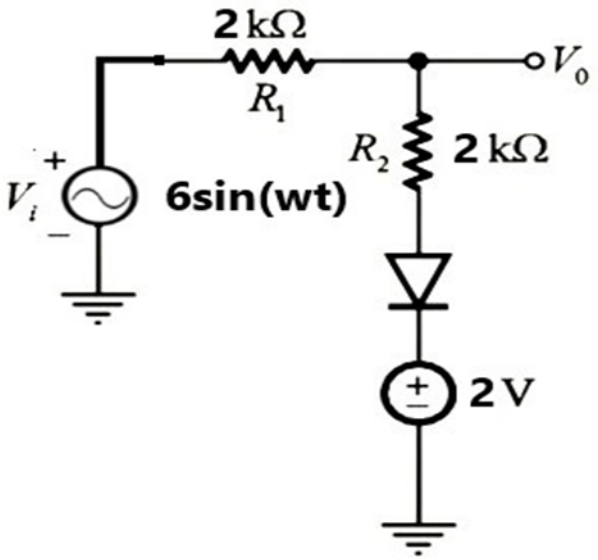
National Institute of Technology, Silchar

Mid-Semester (UG) Examinations, January- 2022

Subject Code: **EC101** Subject:**Basic Electronics**
Semester:**First** Department:**ECE, CSE & EE**
Duration: **One Hour** Total Marks: **20**

All Questions Are Compulsory

Q. No.	Questions	Marks
1	Find the current($\mathbf{I_S}$) supplied by the **5V** battery in the circuit shown in the below figure. 	**3**
2	Analyze the circuit shown in the below figure and draw the output waveform $\mathbf{v_o(t)}$ of it corresponding to the given input signal if the Zener diode is made up of **Si(V_γ = 0.7V).** 	**3**
3	Determine the **ripple factor** of the output of the rectifier circuit for the input signal as shown in the figure below considering the ideal diode. 	**2**

4	The i-v characteristics of diode in the circuit given below are $i = \{\frac{v-0.7}{700} A \quad v \geq 0.7\,V \quad 0 \qquad\qquad v < 0.7\,V$ Determine the current **i** in the circuit.  	**3**
5	The diode in the circuit shown is **Ge** (cut in voltage **0.3 V**). if $V_i = 6 \sin sin\,(wt)\ \ volt$,then determine **minimum and maximum** values of V_0 (in volts).  	**3**
6	Explain how a Zener diode can be used to act as **voltage regulator** with a suitable circuit diagram.	**3**
7	Draw the **IV characteristics** of a normal PN junction diode and a Zener diode together in a single plot to **highlight their differences** and explain the **reasons** behind those differences.	**3**

********END*********