# 10ESL32 - Analog Electronic Circuits

## Assignment-I

Note: i) Write the assignment in a A4 size paper
iii) Mention your USN, name and section on the top right corner of first page
ii) Submit the assignment on or before 11.00 AM, Friday, 30/08/2013

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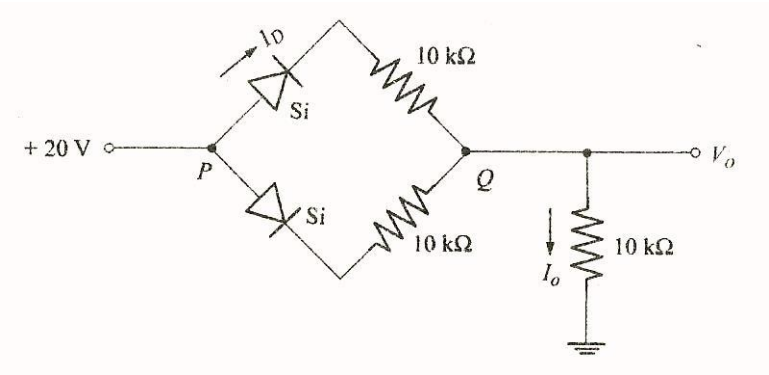
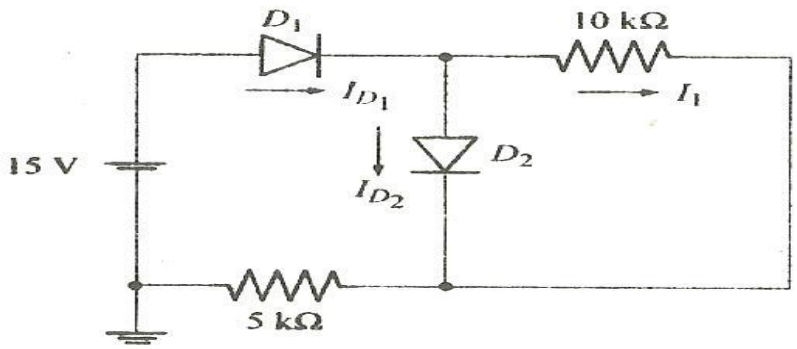
1. Briefly explain the following:
   a) Resistance
   b) Capacitance
   c) Inductance
   d) Impedance
   e) Voltage
   f) Current
   g) Active Devices
   h) Passive Devices

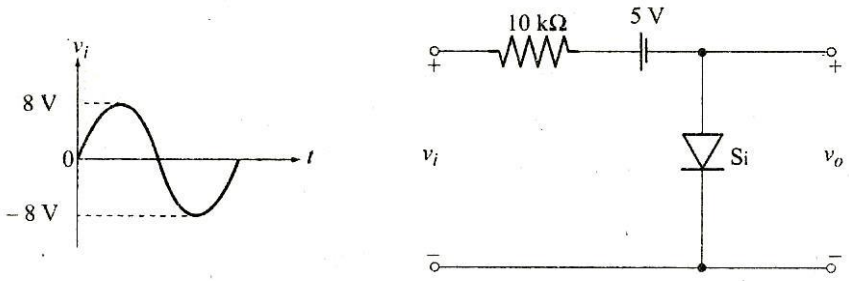
2. Explain the construction and working of both types of full wave rectifier with neat circuit diagrams and waveforms. Obtain the expression for $V_{DC}$, $I_{DC}$, $I_{diode}$ and PIV.
3. What is charge storage? How it affects diode capacitance and reverse recovery time? Explain with suitable figures.
4. Explain diode resistance levels and bulk resistance.
5. For the circuit shown below determine $I_D$, $I_O$ and $V_O$.



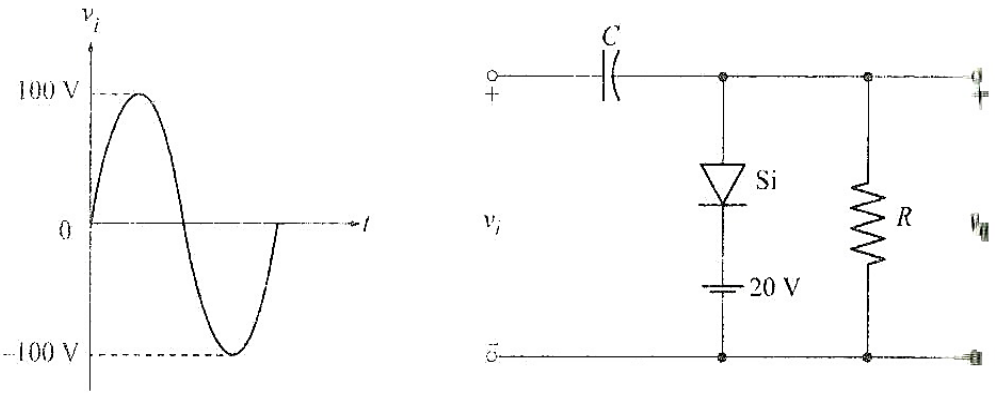

6. Determine $I_{D1}$, $I_{D2}$ and $I_L$ for the following circuit. Assume Si diodes.



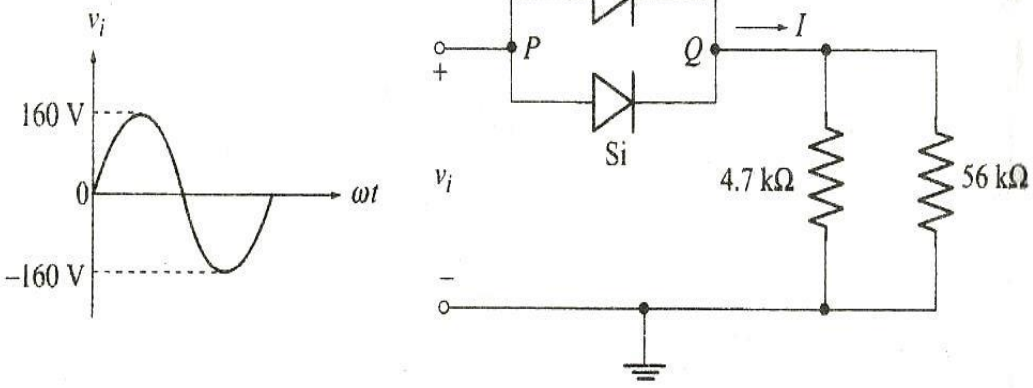
7. Sketch the output waveform and transfer characteristics for the following circuit.




8. Sketch the output voltage waveform for the circuit shown below.

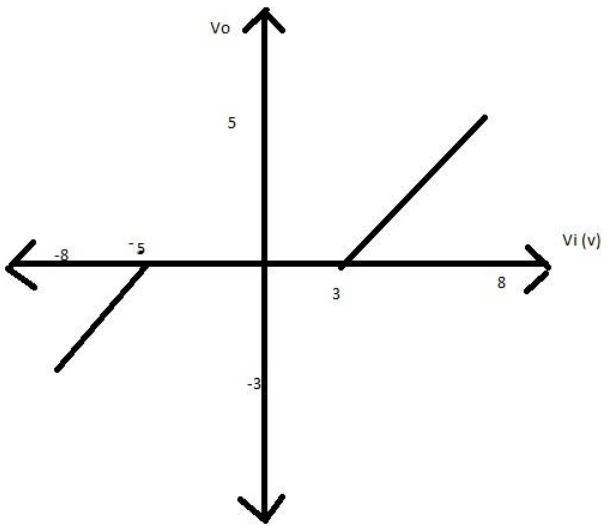



9. For the circuit shown below determine:
   a. Maximum current rating of each diode if $P_{max}$ for each diode is 14mW.
   b. Maximum value of I.
   c. Maximum current through each diode.
   d. Check whether the maximum current rate is exceeded.
   e. If one diode is removed, calculate the maximum current through the other diode. Will this be within the maximum current rating of the diode?



10. Design the circuits to get following transfer characteristics using Germanium diodes:

**a)**




**b)**