LNMIIT
The LNM Institute of Information Technology

Electronics II

Mid Semester Exam 1

Date: 3rd February 2014 **Time: 60 Minutes** **Max Marks. 30**

Notes: If not mentioned, then use second approximation of diode for problem solving.
Marks of each question are mention against it.
Assumptions made should be written clearly.

1: Find out the value of V_O in figure 1 and figure 2. **[2+3]**
2: Find out the values of V_{O1}, V_{O2} and current in Silicon diode in figure 3 **[1+2+2]**
3: Calculate the value of V_O in figure 4. **[5]**

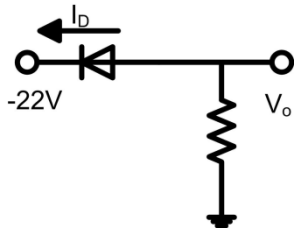

Figure 1

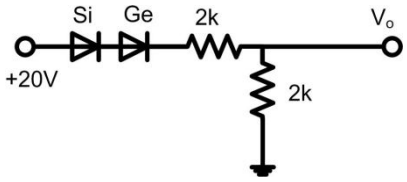

Figure 2

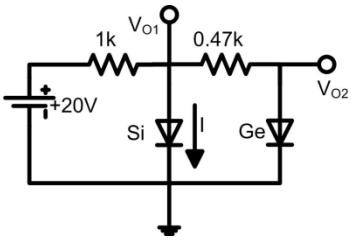

Figure 3

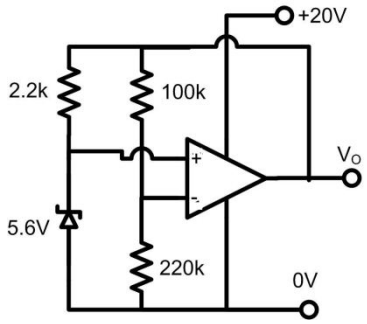

Figure 4

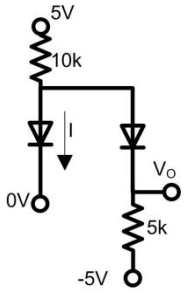

Figure 5

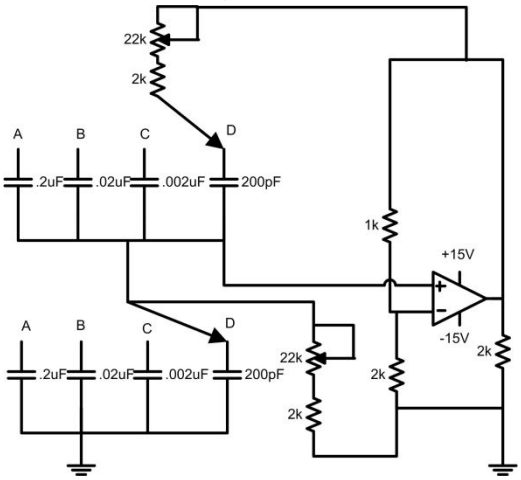

Figure 6

4: Assuming both the diodes to be ideal in Figure 5, find out the value of V_O and current in first diode. **[2+ 3]**
5: Design an Op-Amp based Hartley Oscillator with resonant frequency of 5 kHz and C = 100mF and gain = -4. Inductor is equally divided between input and output loops. (Draw complete circuit with all element values) **[5]**
6: Identify the type of oscillator in Figure 6. Also find out the minimum and maximum frequency that can be produced by this oscillator. Resistors values of both variable resistors would be same at any moment and similarly both the switches would be at same location either of A, B, C or D. **[1+2+2]**
(Capacitors at point A = 0.2uF, b = 0.02uF, C = 0.002uF and D = 200pF. Variable resistance = 22k, fixed R = 2k)