Assignment -4

Basic Electronics (BE): ECE113

Winter-2023

Release: 26-May-2023 (3:00 PM) **Submission:** 2-June-2023 (3:00 PM)

Instructions

- **Institute Plagiarism Policy Applicable.** This will be subjected to strict plagiarism check.
- This assignment should be attempted individually.
- A maximum point for this assignment is 40. All questions are compulsory.
- **File Submission:** Only a *.pdf* file are acceptable, which you have to submit on Google Classroom. Use A4 size sheets only (ruled or blank) to solve your assignment and scan it to create a *.pdf* file. Attempt each question on a different sheet. Do not start a new question at the back of the previous one. Do not forget to mention Page Number (bottom canter) clearly on each sheet of the assignment. Submit a *.pdf* file named *A1_ RollNo.pdf* (e.g., *A1_PhD22100.pdf*), which containing the quality scan copy of your solved assignment.
- **Submission Policy:** Turn-in your submission as early as possible to avoid late submissions. In case of multiple submissions, the latest submission will be evaluated. Expect **No Extensions**. Late submissions will not be evaluated and hence will be awarded zero marks strictly.
- **Clarifications:** Symbols have their usual meaning. Assume the missing information & mention it in the report. Use Google Classroom for any queries. In order to keep it fair for all, no email queries will be entertained.
- There could be multiple ways to approach a question. Please justify your answers. Questions without justification will get zero marks.

Q1: In Fig.-1, find out the value of output voltage (V_o). **[8 Points]**

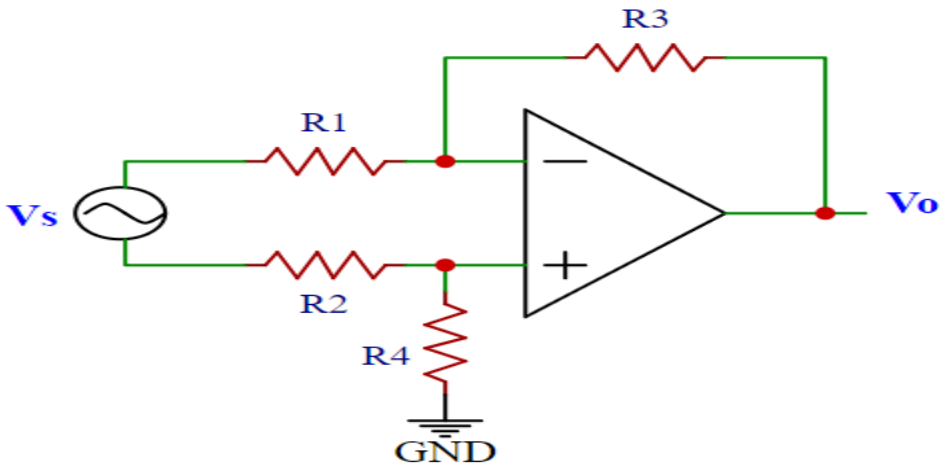

Figure 1

Q2: In Fig.-2, the switch was initially opened for long time. At time t=0 sec, the switch is closed. Find voltage across capacitor (V_c), current through capacitor (I_c) & output voltage (V_0) at time t=1 msec.

[8 Points]

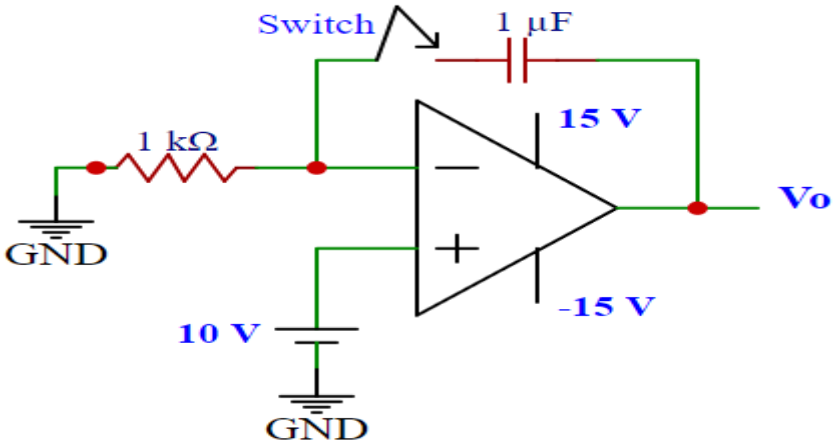

Figure 2

Q3: In Fig.-3, If $V_i(t)$ = 4 Sin (t) then find out value of $V_o(t)$, with proper explanation. Define the nature of the circuit and draw the transfer characteristics & $V_o(t)$ of the circuit. **[8 Points]**

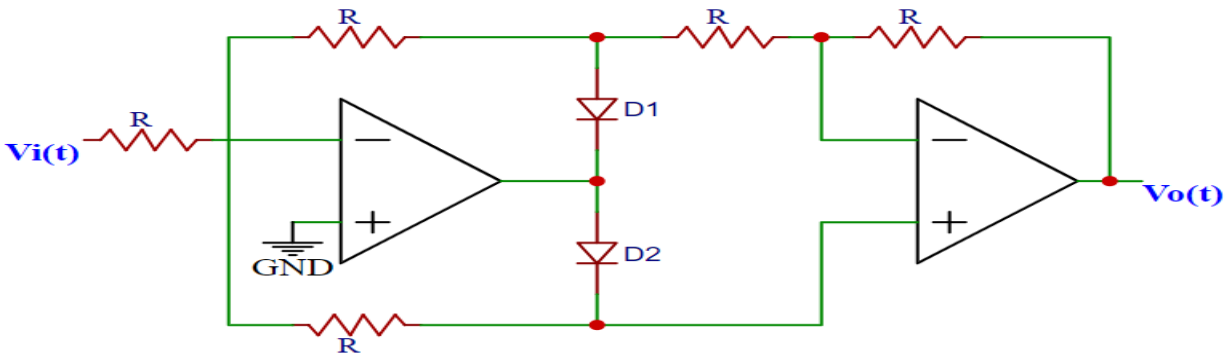

Figure 3

Q4: In Fig.-4, V_Z=10V, $I_{L=}$10mA-85mA & I_{Zmin}=15mA (symbol have their usual meaning). Find R. **[8 Points]**

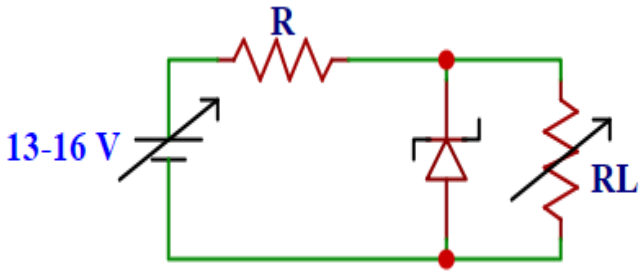

Figure 4

Q5: In Fig.-5, if $V_i(t)$ = 5 Sin(wt) then draw the curve for capacitor voltage [$V_c(t)$] & output voltage [$V_o(t)$] with explanation. Define the nature of circuit. **[8 Points]**

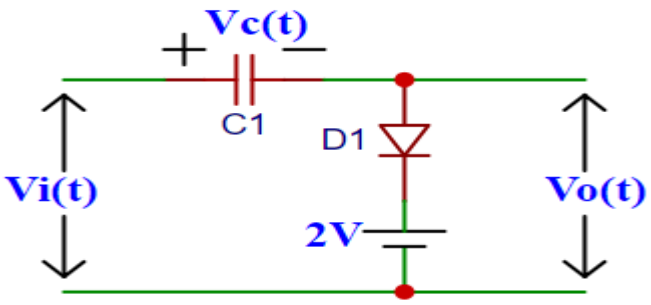

Figure 5