Assignment-2
Winter_2025
Basic Electronics (ECE113)

Instructions

- **Institute Plagiarism Policy Applicable.** This will be subjected to strict plagiarism check.
- A maximum marks for this assignment is **15**. 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_24500.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.

[CO4] Q1: [4+3.5 Marks]

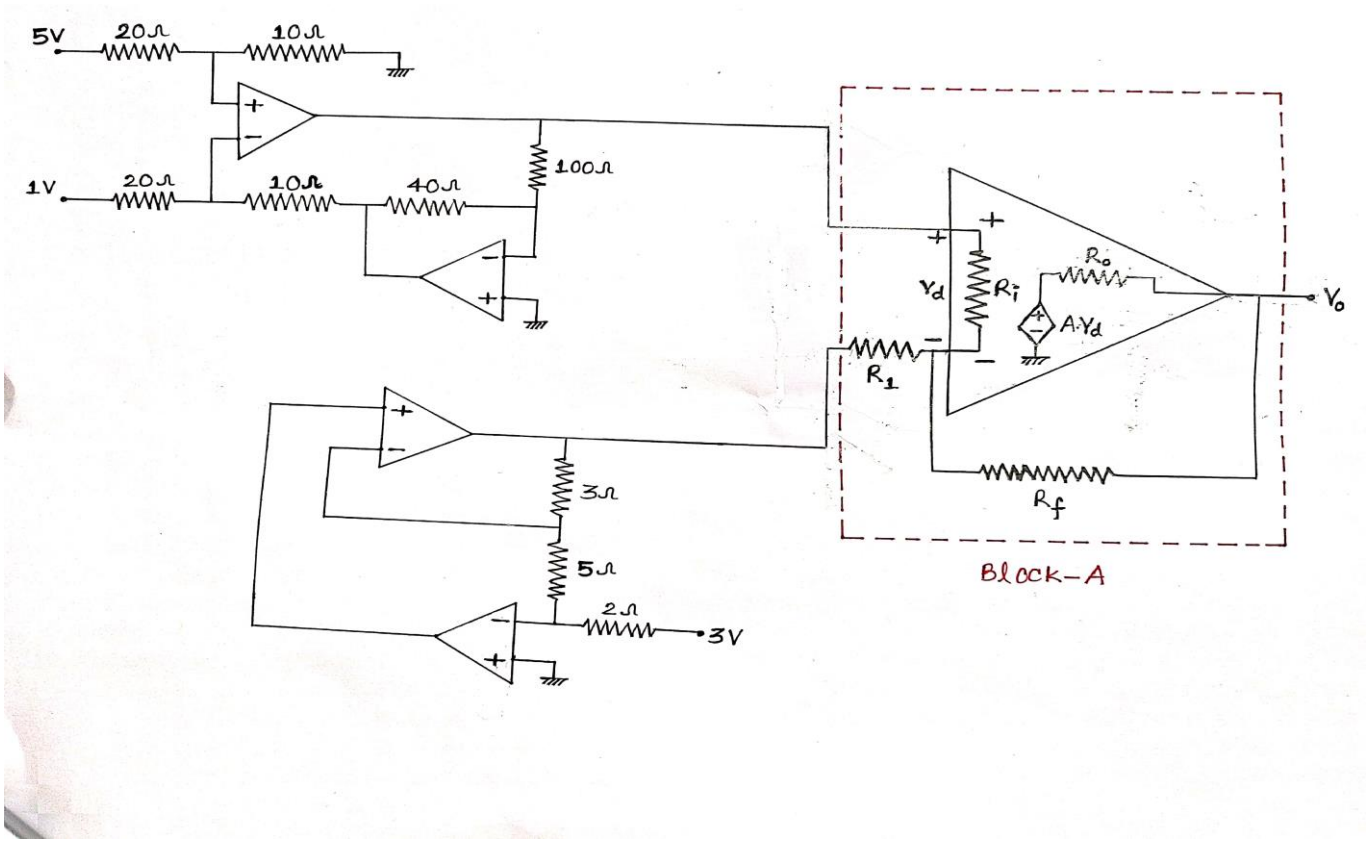

Figure 1

a) Find the value of V_o (in Figure-1) if $R_1 = 4.7\ k\Omega, R_f = 47\ k\Omega$, Input resistance $(R_i) = 2\ M\Omega$, Output resistance $(R_o) = 75\ \Omega$ and Open loop gain $(A) = 2 \times 10^5\ V/V$

b) Find the value of V_o (in Figure-1) for ideal Op-Amp (in Block-A).

[CO4] Q2: [4+3.5 Marks] Design a circuit by using Op-Amp for the given following cases (where $x_1(t), x_2(t)$ and $y(t)$ are the values of voltage):

a) $y(t) = -4x_1(t) + 2\frac{d}{dt}x_1(t) - x_2(t) + \frac{1}{6}\int x_2(t)dt$

b) $y(t) = -3\int x_1(t)\,dt - 12\frac{d}{dt}x_2(t)$, without using capacitor