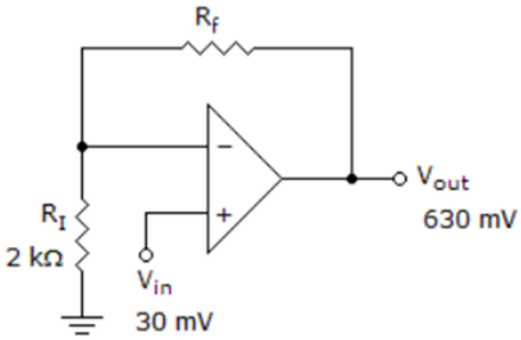
SECTION:

University of Asia Pacific
Department of Computer Science & Engineering
Assignment 1, Fall-2023

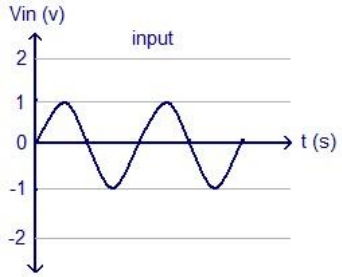
Course Title: Electrical & Electronic Engineering II **Course Code: EEE 201**
Full Marks: 15

Name: _____ ID: _____

1. Calculate the feedback resistor in the given circuit:

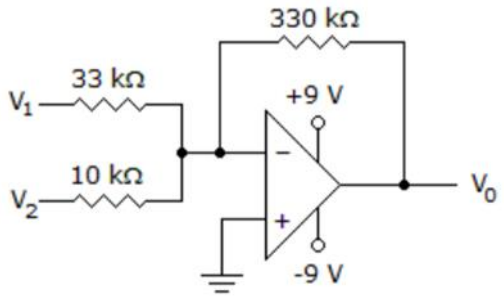


2. Design an amplifier for getting an output of $3V_p$ for a given input shown in the figure. Note that the output will have 180˚ phase shift from the input.



3. Construct a 3-bit flash ADC and find out the digital code for the analog input voltage of 4.5V considering the reference voltage as the last digit of your ID.
[Example: Suppose your ID is 22101027. You have to consider V_{ref} = 7V.]

4. Calculate the output voltage if V1 = – 0.2 V and V2 = 0 V.



5. Design a four-digit *binary-weighted resistor* DAC with V_{ref} = 4.8V, the feedback resistor, R_f = 18kΩ. The lowest value resistor R corresponds to the highest weighted binary input. Use commercially available resistors in your circuit.
Determine the analog output of the designed 4-bit DAC for input bits (a) 1110 and (b) 1011.
Assume R = R_f.