

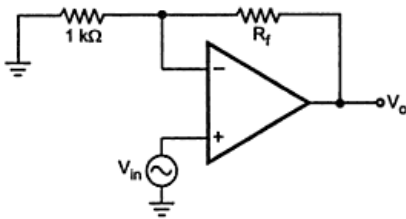
End Semester Examinations - 2015-16 Even Semester - May 2016

15EI2005 Biosignal Conditioning Circuits

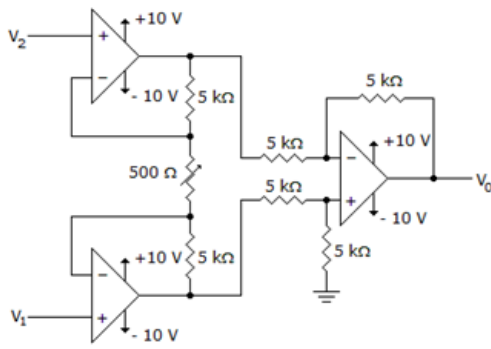
Set A

Time : 3 hrs
Total Marks: 100

1. a. Design an adder circuit using op-amp to get add three input voltages V_1 , V_2 and V_3 . (10)
- b. For the op – amp configuration shown in figure, determine the R_f if the gain required is 61.



- (4)
- c. What are the characteristics of an ideal op amp? (6)
- OR**
2. a. Design a an amplifier of gain 100. The ouput of the amplifier should be 180° out of phase with the input. (8)
 - b. Derrive and design the subtrator application using opamp. (12)
3. a. The use of differential amplifiers is common in bio potential measurements. Why? (8)
 - b. Explain the function of op amp as integrator, draw the waveforms (12)
- OR**
4. Analyze the circuit given below. Mention the characteristics and significance of the given circuit. Calculate the output voltage for the circuit when $V_1 = 2.5\text{ V}$ and $V_2 = 2.25$



5. a. Mention the significance of bio electric currents and its measurement (6)
b. A bio potential amplifier gives an output voltage without connecting any electrodes from the patient. Analyze this problem and suggest suitable compensations (14)
- OR**
6. a. Explain in brief the significance of digitizing. (3)
b. What are the various digital interfaces used? (5)
c. Explain ADC and its types (12)
7. Explain in brief the three types of medical isolation amplifiers
- OR**
8. a. With a neat diagram explain sample and hold circuit and its significance in D/A conversion (8)
b. Write short notes on different types of DACs (12)
9. a. Write short notes on Voltage controlled oscillator (10)
b. Briefly explain PLL and its biomedical applications (10)

Wishing you All the Best
