EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Mid Term II Examination, Fall- 2021

Course: **CSE 251 – Electronic Circuits, Section-5**
Instructor: **Surajit Das Barman, Senior Lecturer, CSE Department**
Full Marks: **20**
Time: **1 Hour and 25 Minutes**

Note: There are FIVE questions, answer ALL of them. Course outcomes (CO), cognitive levels and marks of each question are mentioned at the right margin.

1. **Determine** the output current i_o for the circuit in Fig. 1.
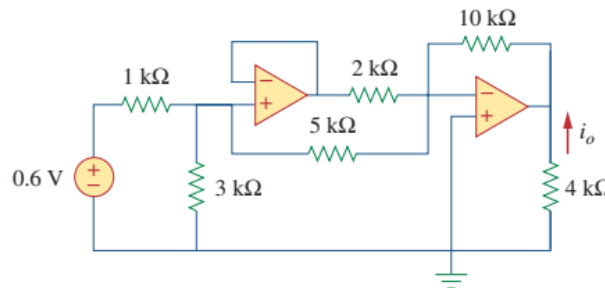
[CO1, C2, Mark: 3]

Fig. 1

2. **Design** a circuit such that

$$-v_{out} = -5v_1 + v_2 + 7v_3$$

Let all the resistors be ≤ 100 KΩ.

[CO3, C4, EP1, Mark: 5]

3. For a given output voltage in Fig. 2(a), **determine** the input voltage v_i for the differentiator circuit shown in Fig. 2(b). Here, $R_i = R_f = 1\ Mohm\ and\ C = 1\mu F$.

[CO3, C3, EP1, EP2, Mark: 5]
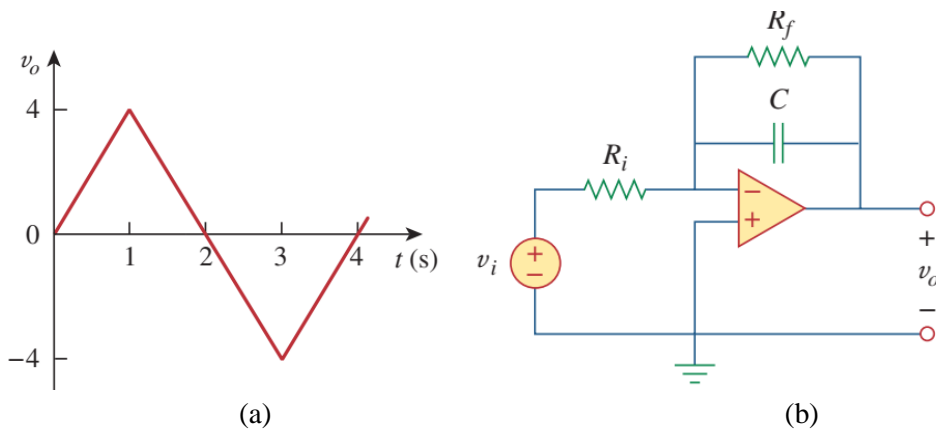

(a)   (b)

Fig. 2

4. At $t=2$ msec, **determine** the output voltage of the following circuit in Fig. 3. Assume that the integrators are reset to 0 V at $t=0$.   [CO3, C4, Mark: 4]
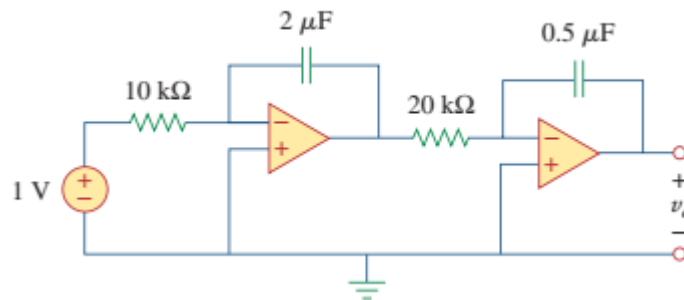

Fig. 3

5. Assuming the op amp to be ideal, it is required to design the circuit shown in Fig. 4 to implement a current amplifier with gain $\frac{i_L}{i_I} = 12$. **Find** the required value for R and R_L if output voltage $v_o = -5\ volt$.   [CO1, C3, EP1, Mark: 3]
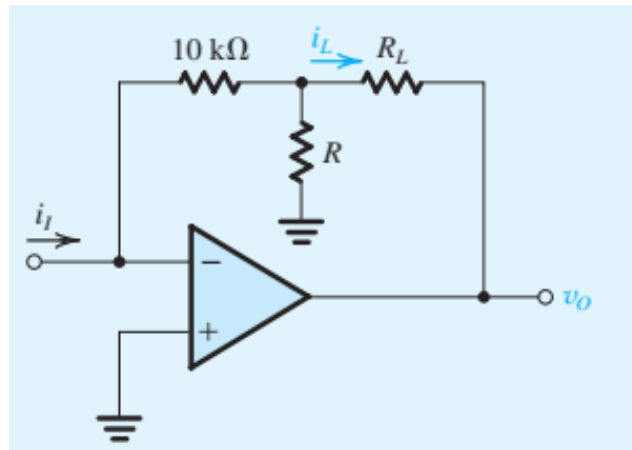

Fig. 4