Roll No. | | | | | | | | | | | | |

SHAMBHUNATH INSTITUTE OF ENGINEERING AND TECHNOLOGY

Subject Code: BEC-201 **Subject: Fundamentals of Electronics Engineering**

Course: B.Tech. **Semester: 2nd**

FIRST SESSIONAL EXAMINATION, EVEN SEMESTER, (2024-2025)

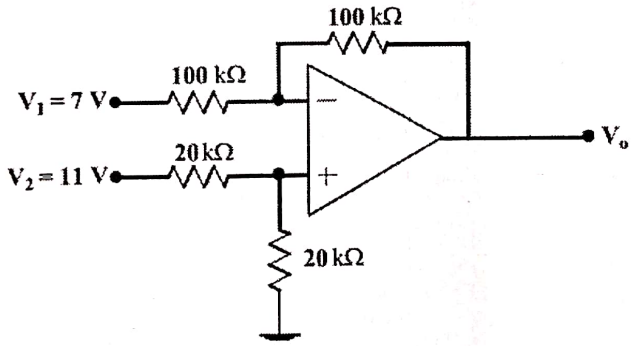
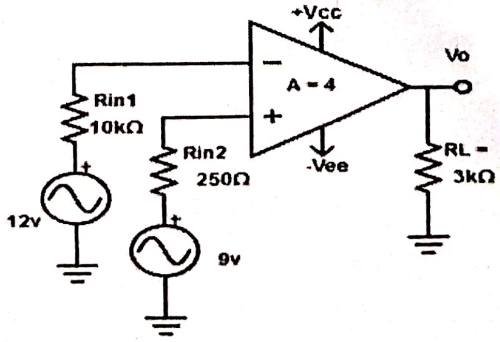
Branch: (CS, CE, EC, ME, EE)

Time –1hr. **Maximum Marks – 1**

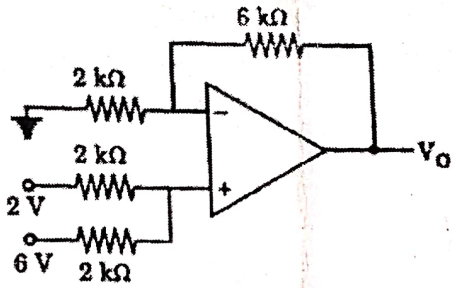
1. Attempt ALL questions:

Q N	QUESTIONS	Marks	CO	BL
a.	Sketch the circuit of summing op-amp in inverting and non-inverting form.	1	CO3	L2
b.	An operational amplifier has differential gain of 200 and CMRR of 90 dB, input voltage are 200 μV and 110 μV. Determine the output voltage.	1	CO3	L3
c.	Define CMRR and slew rate of operational amplifier.	1	CO3	L1
d.	Explain unity gain amplifier.	1	CO3	L1
e.	Write the ideal characteristics of Op-Amp.	1	CO3	L2

2. Attempt any *ONE* of the following:

Q N	QUESTIONS	Marks	CO	BL
a.	Derive the expression for gain of Op-Amp as non-inverting amplifier. Determine the output voltage (V_o) of the given circuit. 	5	CO3	L3
b.	Explain the concept of virtual ground in Op-Amp. Determine the output voltage (V_o) for given circuit. 	5	CO3	L3

3. Attempt any *ONE* of the following:

Q N	QUESTIONS	Marks	CO	BL
a.	Explain any two with the help of necessary diagram: I. Integrator and Differentiator circuit of Op-Amp. II. Differential amplifier in two modes of operation. III. Inverting and non-inverting comparator circuit of Op-Amp.	5	CO3	L1
b.	Define Op-Amp with the help of block diagram. Determine the output voltage (V_o) for given circuit. 	5	CO3	L

Bloom's Taxonomy Level (BL):

Remember (L1) Understanding (L2) Apply (L3) Analyze (L4) Evaluating (L5) Creating (L6)