

1-6-2024



**DOON UNIVERSITY, DEHRADUN**  
**End Semester Examination, IInd Semester, 2024**  
**Academic Year 2023-24 (Even Semester)**  
**School of Technology, Department Name - Computer Science & Engineering**  
**Programme Name - B.Tech.(Computer Science & Engineering)**  
**Course Code with Title: CEC153 - Fundamentals of Electronics**

Time Allowed 2.00 Hours

Maximum Marks: 50

**SECTION: A**

**(Each question of this section carry 2 marks)**

1. What is the octal sum of  $(126)_8$  and  $(193)_8$ ?
2. What is the value of channel gain for voltage follower?
3. As per virtual ground concept, what is the value of  $v_1$  and  $v_2$ ?
4. On how many terminals D-MOSFET works?
5. What are the operations performed by Op-Amp?

**SECTION: B**

**(Each question of this section carry 5 marks)**

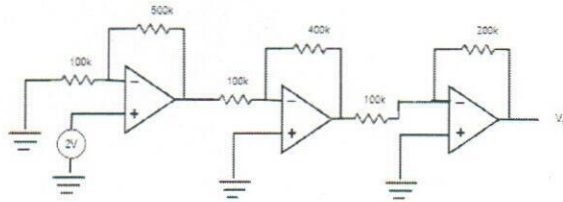
1. Perform some operations:
  - a. Write the POS and SOP form on the basis of table 1
  - b. What is the 7's and 8's complement of  $(347)_8$ ?
  - c. Convert  $(10110)_G$  into binary code.
2. What is JFET? Explain the working of JFET with the help of a diagram.
3. What is Op-Amp? Describe all the parameters of Op-Amp with explanation.
4. What is the difference between inverting and non-inverting Op-Amp?

**SECTION: C**

**(Each question of this section carry 10 marks)**

1. This section divided into two parts a and b:
  - a. For a JFET,  $I_{DSS} = 15\text{mA}$ ,  $V_p = -5\text{V}$ , Find out  $I_D$  when  $V_{GS} = 0\text{V}, 4\text{V}, 8\text{V}$ .
  - b. What is an Op-Amp integrator? Describe the working of Op-Amp Integrator with the help of a diagram.
2. This section divided into three parts a, b and c:

- Obtain Canonical SOP form for  $AB+AC+BC+AD+ACD+A+B$
- What is the final output  $V_o$  for the given Op-Amp problem?



- Difference between XOR and XNOR logic gates.

**Table 1**

A	B	C	F
0	1	1	0
0	0	1	1
1	1	1	0
1	0	1	1
0	1	0	1