Roll No.:.....

National Institute of Technology, Delhi

Name of the Examination: B. Tech 3rd year Mid-Sem. Exam

Branch : ECE/EEE

Semester: 5th

Title of the Course : IC Applications

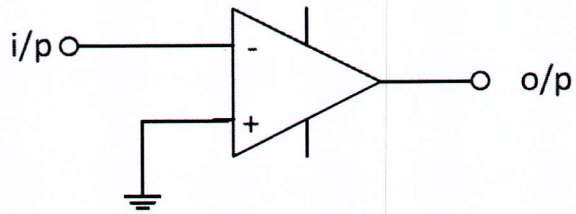
Course Code: ECB-304

Time: 2 Hours

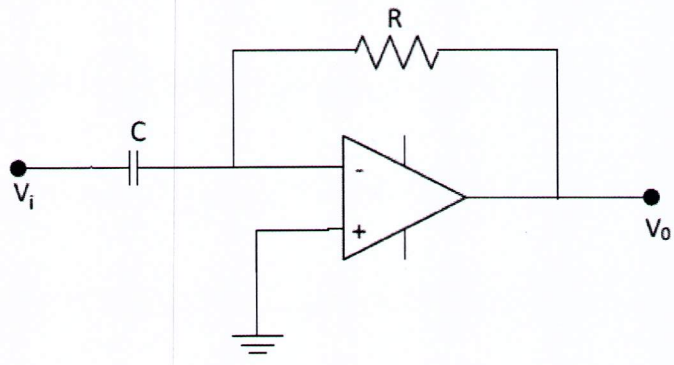
Maximum Marks: 25

Note: Attempt all questions **[10×2.5=25]**

1. Explain the working of the standard TTL NAND gate.
2. If the input to the following circuit is a sine wave, how the output will look like?



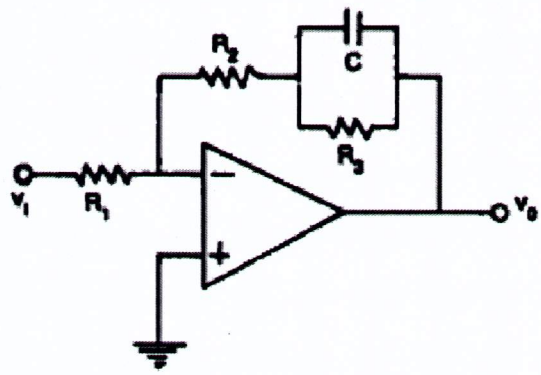
3. Assume the opamp to be ideal. How will V_0 look like when input voltage V_i is (a) triangular wave, and (b) sine wave



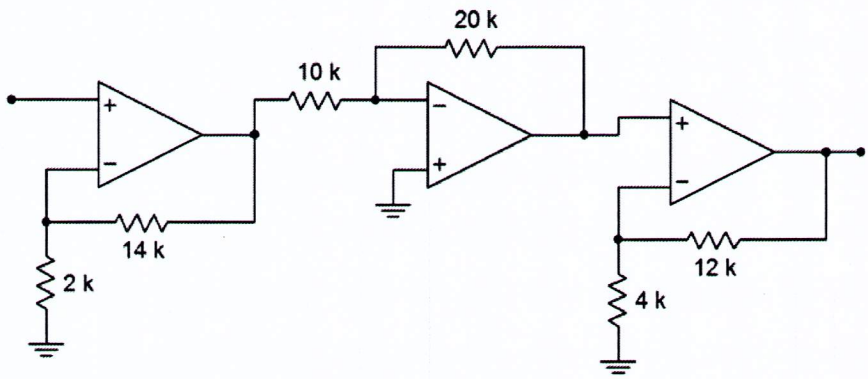
4. What forms of feedback are used for the current-to-voltage and voltage-to-current transducers? Explain working of both amplifiers.
5. Explain working of logarithmic amplifier using op-amps.

(P.T.O.)

6. What is an instrumentation amplifier? Explain its working.
7. Derive the output voltage (V_0) for the given circuit.



8. Derive the gain for following circuit.



9. How input bias current is compensated in inverting operational amplifier?
10. Given an input current of 2 μA, what is the output voltage in following figure?