



Reg. No. :

Name :

Fourth Semester B.Tech. Degree Examination, February 2015
(2008 Scheme)
08.405 – ANALOG INTEGRATED CIRCUITS (T)
(Special Supplementary)

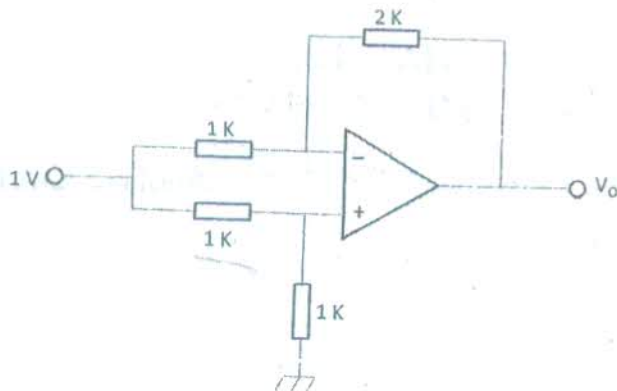
Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. With schematic, explain a V to I converter with floating load.
2. Explain how frequency compensation is achieved in op-amps.
3. Define slew rate. What is its effect on the performance of op-amp ?
4. Find V_o for the op-amp circuit shown in Figure.



5. Define resolution, settling time and conversion time of DAC.
6. With schematic explain a sample and hold circuit.
7. Design a Sallen and Key 2nd order active HPF for a cut off frequency of 10 KHz.
8. Draw the pin configuration of IC 8038 and mention the function of each pin.



9. Design a circuit using IC 555 to turn ON an LED for 1 ms and turn it OFF for 0.5 ms.
10. Explain how current boosting is achieved in IC 723.

PART - B

Answer **any two** questions from **each** Module. **Each** question carries **10** marks.

Module - I

11. Draw the circuit diagram of an instrumentation amplifier using OP-amp and derive its gain equation.
12. With circuit schematic explain an RC phase shift oscillator. Derive expression for frequency of oscillation.
13. Describe the operation of two-stage op-amps with balanced and unbalanced outputs and explain the methods by which the output impedance can be increased without adding more cascade devices.

Module - II

14. Draw the circuit diagram of a 2nd order active BPF filter and derive expression for transfer function.
15. Derive expression for transfer function of a Tow-Thomas biquad filter.
16. a) With schematic explain the principle of successive approximation ADC.
b) What are switched capacitor filters. Mention their advantages. How it differs from analog filters ?

Module - III

17. What is the function of VCO ? With circuit diagram explain emitter coupled VCO.
18. With block schematic explain the operation of PLL.
19. Draw the internal block diagram of LM 723 voltage regulator and explain how it can be used as a high voltage regulator.

15. Derive expression for transfer function of a Tow-Thomas biquad filter.