



Analog Integrated Circuits & Applications (1100)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** questions from each unit.
5. Figure to the right indicates full marks.
4. Assume suitable data if required.
5. Use of non - programmable calculator is allowed.

UNIT - I

1. a) Explain with operation, why current mirror circuit is use in differential amplifier stages. **10**
- b) Define the following parameters of OP-Amp with their ideal values. **10**
 - i) CMRR
 - ii) Slew rate
 - iii) PSRR
 - iv) Input offset voltage
 - v) Input Bias current.
- c) Why active loads are used. Draw and explain circuit diagram of differential amplifier with active load. **10**

UNIT - II

2. a) Draw a circuit diagram of log amplifier and derive expression for output voltage. **10**

- b) What is drawback of basic integrator ? Draw the frequency response of basic and practical integrator circuit in details. **10**
- c) Design a differentiator to differentiate an input signal that varies in frequency from 10Hz to 1kHz. **10**

UNIT - III

3. a) Explain monostable mode of operation of IC 555. **10**
- b) Draw and explain block diagram of function generator IC 8038. List it's features. **10**
- c) Design the wien bridge oscillator for $F_o = 1 \text{ KHz}$. use OP-Amp 741. **10**

UNIT - IV

4. a) Explain how simple intercom can be designed by using LM - 380 power audio amplifier give it's features. **10**
- b) Explain application of PLL as. **10**
- i) AM demodulator.
- i) FSK demodulator.
- c) Explain voltage controlled oscillator using IC 566. **10**

UNIT - V

5. a) Draw and explain successive approximation type ADC. List the features. **10**
- b) Write short notes on. **10**
- i) Sample and Hold circuit.
- ii) Notch filter.
- c) Design a second order low pass filter at high cut - off frequency of 1 KHz. **10**
