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B.E./ B.Tech (Full Time) DEGREE END SEMESTER EXAMINATION, APRIL / MAY2012

ELECTRONICS AND COMMUNICATION ENGINEERING

FOURTH SEMESTER

EC283 – LINEAR INTEGRATED CIRCUITS

(REGULATIONS 2004)

Time: Three hours. **Maximum: 100 marks**

Answer All Questions.

Part A **10 X 2 = 20 Marks.**

1. Draw the pin detail of IC 741.
2. Give the schematic of Wilson current source?
3. Draw the schematic of zero crossing detector using op-amp.
4. What is a logarithmic amplifier?
5. What is an analog multiplier?
6. Define PLL.
7. What is a data converter?
8. Give the schematic of sample and hold circuit.
9. List different sources of noise.
10. Draw the schematic of power amplifier.

Part B **5 X 16 = 80 Marks.**

11(a).(i). With a neat block diagram and schematic explain the internals of op-amp. (8)

(ii). Briefly explain the method of improving slew rate. (8)

12.(a)(i). With a neat diagram explain non inverting amplifier and derive its output equation. (8)

(ii). Briefly explain the construction of op amp based window detector. (8)

(OR)

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12.(b).With a neat diagram and derivation explain the working of 3 op-amp based instrumentation amplifier. (16)

13.(a). With a neat diagram explain the working of voltage controlled oscillator. (16)

(OR)

13.(b).(i). Explain the construction of AM modulator using PLL. (8)

(ii). Write short notes on frequency synthesizers. (8)

14.(a).(i). With a neat diagram explain the working of high speed sample and hold circuits. (8)

(ii). Briefly explain the construction of voltage to frequency converter (8)

(OR)

14.(b).(i).Explain the working of R-2R ladder type DAC. (8)

(ii).Explain the working of single slope ADC. (8)

15.(a).With a neat diagram explain the working of 555 timer IC. Design a circuit using the same IC to toggle an LED with one second delay assume all other relevant details. (16)

(OR)

15.(b).(i).Using the power amplifier circuit design an intercom, assume all other relevant details. (8)

(ii). Write short notes on voltage regulators. (8)
