Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 91441

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Fourth Semester

Electrical and Electronics Engineering

EE 2254/EE 45/EC 1260/080280028/10133 EE 405 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Regulation 2008/2010)

(Common to Instrumentation and Control Engineering and Electronics and Instrumentation Engineering)

(Also common to PTEE 2254 – Linear Integrated Circuits and Applications for B.E. (Part – Time) – Third Semester – Electronics and Instrumentation Engineering – Regulation 2009/10133 EE 405 – Linear Integrated Circuits and Applications for B.E. (Part – Time) – Sixth Semester EEE – Regulation 2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List advantages if IC's over discrete components.

2. Explain why buried layer is needed?

3. Define thermal drift.

4. What are the ideal characteristics of an Op-Amp?

5. Draw the circuit of a positive clipper.

6. What is an Instrumentation Amplifier?

7. Draw the block diagram of a PLL.

8. Define capture and lock range.

9. What is a switching regulator?

10. Draw the pin diagram of IC 8038.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain CMOS fabrication with neat sketches. (8)

(ii) What is Photolithography? What is the purpose of diffusion? (8)

Or

(b) (i) List the methods for fabricating Integrated resistors and Explain. (10)

(ii) What is a Schottky transistor? Draw the cross sectional view and explain its operation. (6)

12. (a) (i) Discuss in detail the DC characteristics of an Op-Amp. (12)

(ii) Explain the functions of Op–amp as an Integrator. Draw the waveforms. (4)

Or

(b) (i) With a neat diagram explain the working shunt feedback amplifiers and series feedback amplifiers . (12)

(ii) Explain the function of an Op-amp as an differentiator. Draw the waveforms. (4)

13. (a) (i) Explain the operation of peak detector and S/H circuit. (6)

(ii) What is the use of an A/D convertor. Explain the Dual slope type of A/D convertor. (10)

Or

(b) (i) Differentiate a clipper and a clamper with neat sketches. (6)

(ii) Explain the operation of a regenerative comparator. (10)

14. (a) (i) Draw the functional block diagram and explain the Characteristics of IC 555. (12)

(ii) Write a short note on Analog multiplier. (4)

Or

(b) (i) Explain the functioning of IC 566 as a PLL. (12)

(ii) Explain the application of PLL as a frequency translator. (4)

15. (a) What are IC voltage regulators? Explain the principle of operation of IC LM317 as a voltage regulator. (16)

Or

(b) (i) With a neat circuit diagram explain the function of a LM 380 as a power amplifier. (12)

(ii) Explain Isolation Amplifiers. (4)