

N 1154

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2004.

Fourth Semester

Computer Science and Engineering

EC 250 — ELECTRONIC CIRCUITS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Distinguish between intrinsic and extrinsic semiconductors.
2. Draw the VI characteristics of a diode.
3. List the four types of negative feedback.
4. Mention any two benefits of h parameters.
5. Define CMRR.
6. Draw the voltage follower using op amp.
7. Name any two LC oscillators.
8. What are the main blocks of a voltage regulator?
9. Draw the first order lowpass Butterworth filter.
10. Name any two types of ADC techniques.

PART B — ($5 \times 16 = 80$ marks)

11. Draw a typical common emitter amplifier circuit and explain the function of each component in it.

12. (a) (i) Draw and explain the drain characteristics and transfer characteristics of n channel JFET. (10)
(ii) Define the JFET parameters. (6)

Or

- (b) Discuss the following :
(i) n type semi conductor (6)
(ii) relationship between α and β in a transistor (4)
(iii) fixed biasing. (6)
13. (a) (i) List the ideal characteristics of an op amp. (6)
(ii) Compare inverting and non inverting amplifiers. (10)

Or

- (b) Discuss the following applications of op amp :
(i) Integrator
(ii) Differentiator
(iii) Summer
(iv) Subtractor. (4 × 4 = 16)
14. (a) With circuit diagram describe the RC phase shift oscillator. Derive the expression for frequency of oscillation.

Or

- (b) Discuss the functional block diagram a monolithic voltage regulator and configure that as a low voltage regulator.
15. (a) (i) Discuss the operation of log amplifier and antilog amplifier. (10)
(ii) Describe a sample and hold circuit. (6)

Or

- (b) (i) With a block diagram explain the successive approximation A/D converter. (8)
(ii) Explain any two applications of an analog multiplier. (4 + 4)