B 2156

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Second Semester

Civil Engineering

EC 151 — ELECTRONICS ENGINEERING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the effect of doping?

2. Draw the equivalent model of a diode.

3. What is meant by thermal runaway?

4. Write the significance of Q-point.

5. Define bandwidth.

6. How are sinusoidal oscillators classified?

7. What are the advantages of operational amplifier?

8. Classify different types of filters.

9. Which is the universal gate? Why is it called so?

10. What is the necessity of an Accumulator?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain how is depletion layer formed in PN junction during unbiased condition. (8)

(ii) Explain the electric field distribution in PN junction diode with suitable diagram. (8)

Or

(b) (i) Explain the biased diode operation using energy band diagram. (8)

(ii) Draw the volt-ampere characteristic of a zener diode and explain in detail. (8)

12. (a) (i) Draw and describe the input and output characteristics of Bipolar Junction Transistor in common base configuration. (8)

(ii) Show the minority carrier distribution in Bipolar Junction Transistor operated in active region and explain. (8)

Or

(b) Explain the construction and working operation of n-channel depletion type MOSFET. (16)

13. (a) (i) Describe the operating principles of voltage regulators. (8)

(ii) Draw the circuit of common Emitter amplifier and describe its function. (8)

Or

(b) (i) Draw and explain the constructional details and principle of operation of SCR. (8)

(ii) Explain the principle of operation of feedback oscillator. (8)

14. (a) (i) With a neat block diagram, explain the operation of multivibrator. (8)

(ii) List the advantages and applications of operational amplifier. (8)

Or

(b) Draw the circuit diagram using OPAMP and obtain the characteristics for the following :

(i) Adder (4)

(ii) Second order filter (4)

(iii) Integrator (4)

(iv) Differentiator. (4)

15. (a) Draw the circuit of various gate circuits and obtain their truth tables. (16)

Or

(b) Write short notes on :

(i) Digital to analog conversion. (8)

(ii) Principle of digital computer. (8)
