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

Third Semester

(Regulation 2004)

Electrical and Electronics Engineering

EC 1211 — ELECTRONIC DEVICES

(Common to B.E. Part-Time Second Semester Regulation 2005)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. Give the diode current equation.

2. Define cutin voltage.

3. Give the current gain expression for a common emitter transistor configuration.

4. What are the tools used for small signal analysis of BJT?

5. Differentiate between BJT and JFET's.

6. Give any two application of UJT.

7. Give any two applications of liquid crystal cells.

8. What is the difference between LED's and Photo diodes?

9. Why are zener diodes employed as voltage regulators?

10. What is the significance of a varactor diode?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the working of a PN junction diode under various biasing conditions using the relevant circuit sketch.

Or

(b) (i) Explain how a PN junction is formed? (8)

(ii) Write a note on diode capacitances. (8)

12. (a) Explain the input and output characteristics of a common base BJT configuration. Also draw the characteristic curves.

Or

(b) Using the hybrid equivalent model, analyse and deduce the expression for the parameters using the circuit sketch. What is the significance of this approach?

13. (a) Explain the construction, working and operating characteristics of N–Channel JFETs with relevant diagrams. Give the applications of JFETs.

Or

(b) Explain the construction and working of the unjinction transistor. What is the significance of the operating VI characteristics of UJT. Draw the relevant diagrams.

14. (a) Write a detailed note on :

(i) LED's (8)

(ii) Phototransistor. (8)

Or

(b) Describe the construction, working and VI characteristics of a phototransistor. Bring out the difference between phototransistor and photodiodes.

15. (a) Give the theory of construction, working and VI characteristics of SCR. List out the applications of it.

Or

(b) Discuss about the construction, working and operating characteristics of tunnel diodes. What is the salient feature of this diode?