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Question Paper Code: 21010

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2014.

Second Semester

Electronics and Communication Engineering

01UEC207 - ELECTRONIC DEVICES

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is meant by doping in a semiconductor?
2. Define the term conductivity in a semiconductor.
3. Define peak inverse voltage in a PN Junction Diode.
4. Write short note on avalanche breakdown.
5. Discuss the relation between α and β .
6. Write short note on leakage current in Common Base configuration.
7. List out the differences between JFET and BJT.
8. Define Pinch off voltage (V_p).
9. What are the advantages of TRIAC over SCR?
10. List out any four applications of Photodiode.

PART - B (5 x 16 = 80 Marks)

11. (a) What is drift current? Derive the expression for drift current and diffusion current in semiconductors. (16)

Or

- (b) (i) Explain the classification of solids based on energy band. (8)
(ii) Derive the conductivity equation for an N type and P type Semiconductor. (8)

12. (a) Explain the working of a PN junction diode under various biasing conditions using the relevant circuit sketch. (16)

Or

- (b) Explain the construction and working of Half wave and full wave rectifiers with resistive load. (16)

13. (a) With neat diagram explain the operation and Input and Output characteristic of CE configuration. (16)

Or

- (b) (i) Explain the switching characteristics of BJT. (8)
(ii) Compare the characteristics of CE, CB and CC configurations. (8)

14. (a) Explain the construction, working and operating characteristics of N-Channel JFETs with relevant diagrams. Give the application of JFET. (16)

Or

- (b) (i) Compare the depletion mode and enhancement mode of MOSFET. (4)
(ii) Explain the Principle of operation of Enhancement N-Channel MOSFET and draw its drain characteristics. (12)

15. (a) With neat diagram explain the constructional details and working principle of SCR. (16)

Or

- (b) With relevant sketches explain the construction, working and characteristics of UJT. (16)