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Question Paper Code: 32407

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. What are the advantages of Field Effect Transistor over BJT?
8. How gate is protected from high voltage in MOSFET?
9. What is DIAC?
10. Define Break over voltage of SCR.

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) State and explain mass action law. (8)
(ii) Derive the conductivity equation for an N type and P type semiconductor. (8)

12. (a) (i) Explain the operation and characteristics of Zener diode. (8)
(ii) Derive the expression for diode current equation and diffusion capacitance. (8)

Or

- (b) Explain the operation of full wave rectifier and derive an expression for ripple factor, efficiency, form factor and peak factor. (16)
13. (a) (i) Explain in detail the input and output characteristics of Common Emitter Transistor. (12)
(ii) Write the characteristics of Common Collector Transistor configuration. (4)

Or

- (b) Why BJT is said to be current controlled device? With the help of neat diagram explain the operation of NPN transistor. (16)
14. (a) Explain the construction, working and operating characteristics of N-Channel JFETs with relevant diagrams. Give the application of JFET. (16)

Or

- (b) Explain the Principle of operation of Enhancement N-Channel MOSFET and draw its drain characteristics. (12)
15. (a) (i) Explain the working principle and characteristics of silicon controlled rectifier. (8)
(ii) Explain the V – I characteristics of UJT. (8)

Or

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