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Question Paper Code: 31427

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. Draw the energy band structure of semiconductor.
2. Define the term conductivity in a semiconductor.
3. What is Zener breakdown?
4. Write short note on avalanche breakdown.
5. When does a transistor act as a switch.
6. Write short note on leakage current in Common Base configuration.
7. What are the advantages of Field Effect Transistor over BJT?
8. Define Pinch off voltage (V_p).
9. What is DIAC?
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) Write the classification of solids with energy band diagram. (8)
- (ii) Explain about P-type and N-type semiconductors. (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 operation of full wave rectifier and derive an expression for ripple factor, efficiency, form factor and peak factor. (16)
13. (a) With neat diagram explain the operation and Input and Output characteristic of CE configuration. (16)

Or

- (b) (i) Explain the operation PNP transistor. (8)
- (ii) Explain the working principle of transistor amplifier. (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) Explain the construction, working principle of Enhancement and Depletion mode MOSFET. (16)
15. (a) With neat diagram explain the constructional details and working principle of SCR. (16)

Or

- (b) (i) Explain the characteristics of TRIAC. (8)
- (ii) Write about photodiode and phototransistor. (8)