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Question Paper Code: 52407

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. 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. List out the differences between JFET and 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) Explain the drift and diffusion currents for semiconductor.

(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) 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) (i) Explain in detail the input and output characteristics of Common Base 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) (i) Explain the operation, Drain and transfer characteristics of N-channel JFET. (12)
- (ii) Compare JFET with BJT. (4)

Or

- (b) Explain the Principle of operation of Enhancement N-Chennal MOSFET and draw its drain characteristics. (12)
15. (a) (i) Explain the characteristics of TRIAC. (8)
- (ii) Write about photodiode and phototransistor. (8)

Or

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