Reg. No. : | | | | | | | | | | |

Question Paper Code: 32404

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. State the relation between α and β of a transistor.
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 (Vp).
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) 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) With neat diagram explain the operation and Input and Output characteristic of CE configuration. (16)

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) 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)

Or

(b) Explain the construction, working principle of Enhancement and Depletion mode MOSFET. (16)

15. (a) Explain the construction and working of SCR. Also explain the static characteristics of the same. (16)

Or

(b) (i) Explain the characteristics of TRIAC. (8)

(ii) Write about photodiode and phototransistor. (8)