

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: 31427

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. Give the relation for concentration of holes in the n-type material.
3. Define peak inverse voltage in a PN Junction Diode.
4. Define transition capacitance.
5. Discuss the relation between α and β .
6. What are the characteristics of CE transistor?
7. List out the differences between JFET and BJT.
8. How gate is protected from high voltage in MOSFET?
9. What are the advantages of TRIAC over SCR?
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) 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) (i) Explain the operation and characteristics of Zener diode. (8)
(ii) Derive the expression for diode current equation and diffusion capacitance. (8)

Or

- (b) (i) 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 switching characteristics of BJT. (8)
(ii) Compare the characteristics of CE, CB and CC configurations. (8)
14. (a) (i) Explain the operation, Drain and transfer characteristics of N-channel JFET. (12)
(ii) Compare JFET with BJT. (4)

Or

- (b) (i) Explain the construction, working principle of Enhancement and Depletion mode MOSFET. (12)
(ii) Mention the handling precautions for MOSFET. (4)
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)