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

Question Paper Code: 21009

B.E. / B.Tech. DEGREE EXAMINATION, OCTOBER 2014.

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. Give the relation for concentration of holes in the n-type material?

3. What is zener breakdown?

4. Define transition capacitance.

5. When does a transistor act as a switch?

6. What are the characteristics of CE transistor?

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) (i) Write the classification of solids with energy band diagram. (8)

(ii) Explain about P-type and N-type semiconductors. (8)

Or

(b) (i) Explain about drift and diffusion current of semiconductor. (10)

(ii) Explain how semiconductor parameters are varying with temperature. (6)

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) (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) (i) Explain the operation PNP transistor. (8)

(ii) Explain the working principle of transistor amplifier. (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) (i) Explain the working principle & characteristics of Silicon Controlled Rectifier. (8)

(ii) Explain the V-I characteristics of UJT. (8)

Or

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

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

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