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

Question Paper Code: 31247

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

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. When does a transistor act as a switch?
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) 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) (i) Explain the operation and characteristics of Zener diode. (8)

(ii) Derive the expression for diode current equation and diffusion capacitance. (8)

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) 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)

15. (a) (i) Explain the working principle and characteristics of silicon controlled rectifier. (8)

(ii) Explain the VI characteristics of DIAC. (8)

Or

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

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