Roll No. .....
Printed Pages : 2

33087

BT-3 / D-17

ELECTRONIC DEVICES

Paper–ECE-203 N

Time allowed : 3 hours] *[Maximum marks : 75*

*Note :- There are **eight** questions in all; students are required to attempt any **five** questions by selecting at least one question from each unit. Each question carries equal marks.*

Unit–I

1. (a) Explain Hall Effect phenomenon? Derive the equation of hall voltage. 7

   (b) Differentiate between drift and diffusion currents. Derive the equation of drift current of a semiconductor. 8

2. (a) Differentiate between diffusion and depletion capacitance. Derive the expression for diffusion and depletion capacitance. 8

   (b) Describe the working of tunnel diode with V-I characteristics. How it is different from normal p-n diode? 7

Unit–II

3. Explain the basic operation of BJT transistor with emitter, base and collector currents. Also explain why base width kept smaller than emitter and collector region? 15

4. (a) Derive the equation of current in Ebers-Moll model of BJT. 8

(b) Explain hybrid-Pi model of BJT CE amplifier. 7

Unit–III

5. Explain the operation of two-terminal MOS structure and explain the role of metal-semiconductor interface? 15

6. Describe the working and operation of enhancement mode MOSFET with the help of I_{ds}, V_{ds} relationship. Also explain various regions of operations. 15

Unit–IV

7. Discuss the transistor series and transistor shunt voltage regulator and differentiate them on performance parameters. 15

8. Describe SMPS in detail. What are the various components used in it? 15

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