

Roll No.

OLE-3035

B. Tech. 3rd Semester (ECE)

Examination – April, 2021

ELECTRONIC DEVICES

Paper : PCC-ECE-201-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all including Question No. 1 which is *compulsory*. Select *one* question from each Unit. All questions carry equal marks.

1. (a) What is Hall's effect ? 6 × 2.5
(b) Explain avalanche breakdown phenomenon.
(c) Explain Early effect.
(d) Why H-parameter is required ?
(e) Explain Photoemission.
(f) Write down The application of LED.

UNIT – I

2. (a) Explain the band theory of semiconductors. 7

(b) Discuss the continuity equation in Semiconductor. 8

3. (a) Explain P-N Junction. How it is formed ? Also Sketch the V-I Characteristics of P-N Junction diode. 8

(b) Discuss the Switching characteristics of diode. 7

UNIT – II

4. (a) Discuss various types of clipping circuits with proper output wave forms. 8

(b) A full wave bridge rectifier has an input voltage of 240 V ac rms. Assume that all diode to be ideal. Find the output dc current, dc voltage an rms values of output currents and voltages. Assume that load resistance to be 15 k Ω . 7

5. (a) Draw and explain the I/O and O/P Characteristics of CB, CE, and CC Configurations. 8

(b) Explain the Ebers-Mole model of a transistor. 7

UNIT – III

6. (a) Explain biasing and stability. Also explain, why biasing circuits are required. 6

(b) Explain the voltage divide biasing technique. 9

7. (a) Drive the equation for various parameter of CE Configuration using h-parameter. 10

(b) Explain the Thermal Runway. 5

UNIT – IV

8. (a) Explain the Construction and Working of MOSFET in Enhancement mode. 10
(b) Draw high frequency model of FET. 5
9. Write down notes on any *two* : 15
(a) SCR
(b) Schottky diode
(c) Laser diode
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