

Reg. No:

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech I Year I Semester Regular & Supplementary Examinations May-2022

BASIC ELECTRONICS ENGINEERING

(Common to CSE, CSIT, CSM, CIC, CAD & CCC)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Distinguish between conductors, semiconductors and insulators. L2 6M
b Explain about drift current with expressions. L2 6M

OR

- 2 a Explain in detail about mass action law. L2 6M
b Compare between p-type and n-type semiconductors. L4 6M

UNIT-II

- 3 a Illustrate the action of PN junction diode under forward bias and reverse bias and sketch its V-I Characteristics. L2 8M
b A p-n junction germanium diode has a reverse saturation current of $0.10 \mu\text{A}$ at the room temperature of 27°C . It is observed to be $30 \mu\text{A}$, when the room temperature is increased. Calculate the new room temperature. Also determine the current passing through the diode at this new temperature. L4 4M

OR

- 4 a List the applications of PN junction and Zener diodes. L1 4M
b Draw and explain the V-I characteristics of Zener diode. L1 8M

UNIT-III

- 5 a Draw the circuit diagram of a Full wave rectifier and with the help of waveforms describe its operation. L1 6M
b Determine the expressions for Average DC current, Average DC Voltage, RMS Value of Current, DC Power Output, AC Power input and Efficiency of a Full Wave Rectifier. L3 6M

OR

- 6 a Draw the circuit diagram of Full wave rectifier with inductor filter and illustrate its operation. Also derive the expression for ripple factor. L1 8M
b Find the value of inductance to be used in the inductor filter connected to a full wave rectifier operating at 60 Hz to provide a dc output with 4% ripple for a 100Ω load. L1 4M

UNIT-IV

- 7 a Explain the Input and Output characteristics of a BJT in CE Configuration. L2 6M
b Evaluate the relation between α , β and Y of a Transistor. L5 6M

OR

- 8 a Define Stability Factor S. L1 2M
b Compare the configuration of CE, CB and CC. L2 10M

UNIT-V

- 9 a Classify the types of JFET and Draw its symbols **L2 2M**
b Explain the construction and working principle of N-channel JFET. **L2 10M**
- OR**
- 10 a List the differences between N-channel JFET and P-channel JFET. **L2 6M**
b Explain voltage divider bias of JFET with neat circuit diagram. **L4 6M**

*** END ***