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

B Tech II Year I Semester Supplementary Examinations Feb-2021

BASIC ELECTRONIC DEVICES

(Common to EEE & ECE)

Time: 3 hours

Max. Marks: 60

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

UNIT-I

- 1 a What is PN Junction? Explain the formation of depletion layer in a PN junction. **6M**
b Discuss current components in a PN junction diode. **6M**

OR

- 2 a Derive the Diode Current Equation **6M**
b Determine the value of forward current in the case of a PN junction diode, with $I_o = 10\mu A$, $V_f = 0.8V$ at $T = 300^0K$. Assume Silicon Diode. **6M**

UNIT-II

- 3 a Draw and explain the VI characteristics of a Zener Diode. **8M**
b Compare and contrast Zener diode and conventional PN Junction Diode. **4M**

OR

- 4 a With neat diagram, describe the working principle and characteristics of UJT. **7M**
b Explain the construction and applications of Solar Cell. **5M**

UNIT-III

- 5 a Draw the circuit diagram of Full wave Center tap rectifier and explain its operation with the help of waveforms. **6M**
b Derive the expressions for Ripple Factor and Efficiency of Full Wave Center tap Rectifier. **6M**

OR

- 6 a Draw the circuit of capacitor filter and explain its operation. **5M**
b Derive the expression for Ripple Factor of CLC Filter. **7M**

UNIT-IV

- 7 a With neat diagram, explain the Input characteristics of a BJT in CE Configuration. **6M**
b Derive the relation between α , β and γ of a Transistor. **6M**

OR

- 8 a Explain the construction and principle of operation of N-channel JFET. **7M**
b Define the JFET Volt-Ampere Characteristics and determine FET parameters **5M**

UNIT-V

- 9 a Mention different types of Biasing a Transistor. And explain the Fixed Bias of a Transistor in detail. **6M**
b Define stability Factor of a Transistor and derive the expression for it. **6M**

OR

- 10 a Describe Thermistor and Sensistor Compensation Techniques. **6M**
b Discuss about Thermal Runaway and Thermal Resistance. **6M**

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