

H.T.No.

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

Code No: EC1503

GEC-R14

II B. Tech I Semester Supplementary Examinations, June 2017

BASIC ELECTRONICS

(Information Technology)

Time: 3 Hours

Max. Marks: 60

Note: All Questions from **PART-A** are to be answered at one place.

Answer any **FOUR** questions from **PART-B**. All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. Differentiate active and passive components with examples.
2. Why the junction voltage of a forward biased P-N Junction diode decreases with increase in temperature? Explain.
3. Define Intrinsic stand-off ratio of UJT.
4. Define Peak Inverse Voltage (PIV). What is the PIV for a full wave rectifier using ideal diodes?
5. What is the need for biasing?
6. Differentiate between JFET and MOSFET.

PART-B

4 × 12 = 48M

1. a) Define Hall effect. Explain its significance, Derive an expression for Hall coefficient. (8M)
b) What do you mean by doping? Differentiate between intrinsic and extrinsic semiconductors. (4M)
2. a) Explain the diode current equation in forward and reverse bias conditions. (8M)
b) Sketch the V-I Characteristics of P-N Junction Diode. Explain temperature dependence of V-I Characteristics of P-N Junction Diode. (4M)
3. a) Explain the operation of SCR and its characteristics with neat diagram. (6M)
b) Which type of diode capacitance is used in the varactor diode? Explain the operation of varactor diode along with its applications. (6M)
4. a) How does a Zener diode differ from normal P-N Junction diode? Explain how the Zener diode acts as voltage regulator. (6M)
b) With the help of circuit diagram explain the working of full wave rectifier. Derive the expression for ripple factor of full wave rectifier. (6M)

5. a) Derive an expression for stability factor of a voltage divider bias circuit. (8M)
- b) The current gain of a transistor with CE Configuration is 49. Calculate CB current gain and find the base current where the emitter current is 3mA. (4M)
6. a) Explain the construction and operation of an N-channel enhancement MOSFET. (6M)
- b) Explain the working of JFET as Voltage Variable Resistor (VVR). (6M)
