

Code No: RT21023

R13**SET - 1****II B. Tech I Semester Supplementary Examinations, Oct/Nov - 2017****BASIC ELECTRONICS AND DEVICES**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answer **ALL** the question in **Part-A**3. Answer any **THREE** Questions from **Part-B**

~~~~~

**PART -A**

1. a) Differentiate diffusion and characteristics. (3M)
- b) What are various types of capacitances in a diode? (3M)
- c) Define load and line regulations. (4M)
- d) What are various modes of operation of a BJT? (4M)
- e) Define Transconductance and drain resistances in FET (4M)
- f) Compare parameters of different feedback amplifier (4M)

**PART -B**

2. a) State and derive continuity equation. (8M)
- b) Explain the formation and current flow in an N type semiconductor. (8M)
3. a) Explain the VI characteristics of tunnel diode. (12M)
- b) Mention different application of a tunnel diode (4M)
4. a) Draw the circuit of a center tapped transformer based Full wave rectifier and derive its efficiency expression. (8M)
- b) Explain the operation of a capacitor filter and derive the expression for ripple factor with capacitor filter. (8M)
5. a) What is thermal runaway and derive the expression for avoiding thermal runaway. (8M)
- b) Mention different compensation techniques (8M)
6. a) Explain the construction and working of depletion mode MOSFET. (12M)
- b) Compare enhancing characteristics MOSFET (4M)
7. a) Explain the operation of Wien bridge oscillator. (8M)
- b) Quantitatively prove that with series mixing input impedance increases. (8M)