

**II B. Tech I Semester Supplementary Examinations, October/November - 2019**  
**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) What is Fermi level? Give expressions for P-type and N-type semiconductors. (4M)
- b) What is the principal of working of Zener diode? (4M)
- c) What is the need for a Filter and mention types of filters. (3M)
- d) What is thermal runaway and what is punch through? (4M)
- e) Draw the two transistor model of SCR? Draw its symbol. (3M)
- f) Draw the topology of current shunt feedback amplifier? What is this amplifier? (4M)

**PART -B**

2. a) Derive expression for continuity equation. (8M)
- b) Differentiate Drift and Diffusion theory. (8M)
3. a) Draw the construction diagram and explain the characteristics of Varactor diode. (8M)
- b) Compare and contrast Zener breakdown and Avalanche breakdown. (8M)
4. a) Draw the Full wave Rectifier with necessary diagram and derive expression for its efficiency, ripple factor, TUF. (10M)
- b) Compare various filters used with rectifier circuits (6M)
5. a) Present the Analysis of CC transistor amplifier using h-parameters. (8M)
- b) What is Thermal runaway? How to tackle it. (8M)
6. a) Compare depletion and enhancement mode MOSFETs. (6M)
- b) Draw the construction diagram of JFET and explain the transfer characteristics of JFET. (10M)
7. a) Draw all the four topologies of feedback amplifiers and explain. (8M)
- b) Draw the circuit and derive expression for oscillations of Crystal oscillator. (8M)