

**24024**

**B. Tech. 3rd Semester (AEIE) F.Scheme  
Examination, December-2014  
ELECTRONIC DEVICES AND CIRCUITS  
Paper-EE-201-F**

*Time allowed : 3 hours ]*

*[Maximum marks : 100*

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**Note :** *The students have to attempt first common question which is compulsory and one question from each of the four remaining sections. All questions carry equal marks.*

**1. Explain the following :**

- (i) Drift velocity
- (ii) Mean free path
- (iii) P-N junction
- (iv) MESFET
- (v) IGBT

5×4

**Section-A**

- 2. Define super conductivity. Also discuss in brief about factors affecting conductivity of materials.** 10
- 3. State and explain Wiedemann-Franz Law.** 10

**Section-B**

- 4. Compare the following :** 7,6,7
  - (i) Drift current and diffusion current
  - (ii) Diffusion and transition capacitance
  - (iii) Zener breakdown and Avalanche breakdown.

5. Write short notes on 7,6,7
- (i) Plant technology for device fabrication
  - (ii) Solar cells
  - (iii) Photo detectors.

### **Section-C**

6. (a) Write in detail about construction and working of N-Channel Depletion type MOSFET 15
- (b) Discuss the role of BJT as an amplifier. 5
7. Draw and explain Input and Output characteristics of BJT in Common Emitter Configuration. 20

### **Section-D**

8. Discuss in brief about construction, working and application of following devices
- (i) SCR (ii) TRIAC 10,10
9. Write short notes on
- (i) GUNN Diode
  - (ii) IMPATT Diode
  - (iii) L.E.Ds 7,6,7