

Code: **EE1T5**

**I B.Tech-I Semester-Regular Examinations-February 2013**

**BASIC ELECTRONICS ENGINEERING  
(For Electrical and Electronics Engineering)**

Duration: 3hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Briefly explain about different types of capacitors. And also write the applications of capacitors. [7M]  
b) Discuss about the passive and active components with necessary representation. [7M]
2. a) Prove that Fermi level in N-type semiconductor is given by  $E_F = E_C - kT \log(N_C/N_D)$  [7M]  
b) Obtain expression for charge densities in N-type and P-type semiconductors. [7M]
3. a) Draw and explain the V-I characteristics of a PN junction diode. [7M]  
b) Derive diode current equation. [7M]
4. a) Draw the Volt-Ampere characteristics of tunnel diode. Explain the characteristics on the basis of tunneling theory. [6M]

- b) Write short notes on      i) Zener diode ii) varactor diode  
[8M]
5. a) Explain the V-I characteristics in Common Emitter Configuration . [7M]  
b) Explain the operation of transistor as an amplifier. [7M]
6. a) Explain the working of JFET with the help of drain characteristics. [7M]  
b) Define the parameters of a JFET and derive the relationship among them. [7M]
7. a) Describe the principle of working of photo diode with the help of its characteristics [ 7M ]  
b) Explain the working of LED and LCD. Also write their applications. [7M]
8. a) With the help of a neat sketch, describe the working of Cathode Ray Tube. [7M]  
b) Explain about two dimensional motion of electron in electrostatic field. [7M]