

I B. Tech I Semester Regular Examinations, January, 2015**Fundamentals of Electronics Engineering**
(Common to BME, CSE, IT)**Time: 3 hours****Max Marks: 70****PART – A**
Answer ALL questions
All questions carry equal marks
***********2 * 10 = 20 Marks**

- 1). **a** Give basic differences between Drift and Diffusion Currents. [2]
- b** Write the Diode Current Equation. [2]
- c** Define Rectification Efficiency. [2]
- d** Draw the characteristics of Tunnel Diode. [2]
- e** Draw the input characteristics of CC Configuration. [2]
- f** Define Thermal Runaway. [2]
- g** State Miller Theorem. [2]
- h** What are the advantages of h parameters? [2]
- i** Draw the VI characteristics of Enhancement MOSFET. [2]
- j** What is meant by Pinch off Voltage? [2]

PTO...

PART – B
Answer any FIVE questions
All questions carry equal marks

10 * 5 = 50 Marks

2. a) Prove that the Fermi level lies at the centre of forbidden energy in intrinsic semiconductors. [10]
b) Derive an expression for diffusion capacitance.
3. a) Explain the working of half wave rectifier with a neat circuit diagram. [10]
b) Derive an expression for ripple factor for FWR with Capacitor filter.
4. Draw and explain the input and output characteristics of Common Base Configuration? [10]
5. Consider a single stage CE amplifier with $R_S = 1K\Omega$, $R_L = 1K\Omega$, $h_{ie} = 1.1 K\Omega$, $h_{re} = 2.5 \times 10^{-4}$, $h_{fe} = 50$ and $h_{oe} = 25 \mu A/V$. Find A_i , R_i , A_v and R_o ? [10]
6. a) Explain the working principle of depletion mode MOSFET. [10]
b) Explain the operation of UJT with its V-I characteristics.
7. a) Write short notes on Varactor Diode. [10]
b) Write short notes on Zener Breakdown.
8. a) Compare BJT and JFET. [10]
b) Compare Enhancement MOSFET and depletion MOSFET.
