B.E./B.Tech.(Full Time) DEGREE END SEMESTER EXAMINATIONS, APR/MAY2012
ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH
SECOND SEMESTER – (REGULATIONS 2004)
EC 181 – ELECTRONIC DEVICES

Duration: 3 Hours **Max.marks:100**

Answer ALL questions

PART-A (10x2=20 Marks)

1. Compare donor and acceptor.
2. Define carrier drift.
3. Define built in potential.
4. Write the cause for diffusion current in a semiconductor.
5. List the high frequency limitations of bipolar devices.
6. Compare BJT and JFET.
7. Why is FET called an unipolar device?
8. Define MOSFET scaling.
9. Compare the features of DIAC and TRIAC.
10. Give the applications of power bipolar transistor.

PART-B (5X16=80 Marks)

11.(i)Distinguish between electron drift current and hole drift current. **(8)**
(ii)With schematic arrangement explain how Hall effect can be observed. **(8)**

12.(a)(i)Explain the forward bias characteristics of PN junction diode. **(8)**
(ii)Discuss briefly on transients. **(8)**

OR

12.(b)Describe of the following
(i)Schottky diode and its applications **(8)**
(ii)Hetero junctions **(8)**

13.(a)(i)Write the Ebers-moll equations for PNP and NPN transistors and find DC parameters using any one transistor. **(10)**
(ii)Explain how a BJT can be used as an amplifier. **(6)**

OR

13.(b)(i)Explain how frequency hybrid-Pi model for a transistor configuration and find the equation for transconductance. **(10)**
(ii)Describe the factors which determine the switching speed of a BJT. **(6)**

14.(a)(i) Explain the construction and working principle of n-channel enhancement type MOSFET. **(12)**

(ii)Why are NMOS devices preferred over PMOS devices? Justify your answer. Mono stable multi vibrator **(4)**

OR

14.(b)Describe the drain and transfer characteristics of JFET and compare JFET with MOSFET. **(16)**

15.(a)Explain the working principle and the characteristics of UJT and SCR. **(16)**

OR

15.(b)Discuss on the following:

(i)Power MOSFET **(8)**

(ii)Thyristor characteristics **(8)**
