Code No. : 5181/O

FACULTY OF ENGINEERING
B.E. 2/4 (M/P) II Semester (Old) Examination, May/June 2012
BASIC ELECTRONICS

Time : 3 Hours] [Max. Marks : 75

***Note** : Answer **all** questions from Part – **A**. Answer **any five** questions from Part – **B**.*

PART – A **(25 Marks)**

1. Differentiate between intrinsic and extrinsic semiconductors. **3**
2. Explain the terms : **2**
   i) Mobility
   ii) Drift current.
3. Why is the FET called a voltage controlled device ? Explain. **3**
4. Compare the 3 configurations of the transistor amplifier. **3**
5. Draw the circuit for zener diode regulator. **3**
6. Write the condition for sustained oscillations of Hartley oscillator. **2**
7. What is the advantage of crystal oscillator ? **2**
8. Write DeMorgans theorems. **3**
9. Draw the symbols for photo diode, LED, SCR and UJT. **2**
10. Explain two applications of CRO. **2**

PART – B **(50 Marks)**

11. a) How is a p-n junction formed ? Draw the circuit diagram of p-n junction diode in forward bias and reverse bias. Explain its operation and give V-I characteristics. **6**
    b) What is a rectifier ? Draw the circuit diagram for bridge rectifier with LC π filter and explain its operation. **4**

12. a) What is a unipolar device ? With neat diagram, explain the operation of JFET and draw its drain and transfer characteristics. 6

    b) What is a regulated power supply ? With neat circuit diagram, explain the operation of zener diode regulator. 4

13. a) List properties of negative feed back amplifiers. State the advantages of negative feed back in amplifiers. Explain the operation of negative feed back amplifier with help of a block diagram. 5

    b) Define oscillator. Derive the condition for getting sustained oscillations in RC phase shift oscillator. 5

14. a) What do you understand by offset voltage and offset current of an OP-Amp ? Explain how an operational amplifier can be used as integrator. 5

    b) Draw and explain the following circuits :

       i) Half adder

       ii) Full subtractor. 5

15. a) Distinguish between LED and LCD. Explain the construction and operation of UJT. 5

    b) What is LVDT ? Explain the operation of LVDT and give its applications. 5

16. a) What is the difference between TRIAC and DIAC ? With neat diagram, explain the operation of SCR. Give the advantage of TRIAC over SCR. 4

    b) What is the difference between CRT and CRO ? Draw the block diagram of a general purpose CRO and explain function of each block. 6

17. Write short notes on : (5+5)

    a) Hall effect

    b) Strain guage.