Code No. : 5236/O

FACULTY OF ENGINEERING
B.E. 2/4 (CSE) I Semester (Old) Examination, December 2011
BASIC ELECTRONICS

Time: 3 Hours] [Max. Marks: 75

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

PART – A **(25 Marks)**

1. Distinguish between diffusion current and drift current.
2. What are the advantages of bridge rectifier ?
3. How do you classify amplifiers based on operating point and frequency ?
4. By means of a neat diagram of a transistorised IC regulator, explain how the DC output can be varied.
5. Draw the frequency gain response characteristic of an amplifier with and without feedback.
6. How do you distinguish between Hartley and Colpitts oscillator ?
7. Show by diagrams how differentiator and integrator can be distinguished using op-amp.
8. How a half adder can be converted into a full adder ?
9. How an SCR can be represented by a two transistor analogy ? Draw its VI characteristics.
10. Distinguish between a BJT and UJT.

PART – B **(50 Marks)**

11. a) By drawing energy band diagrams, show how Fermi level is indicated in intrinsic and extrinsic materials, in both n-type and p-type materials.

    b) Draw the circuit diagram of a Half wave rectifier. It supplies 100 mA d.c. to a 250 Ω load. Find the dc o/p voltage PIV rating of the diode and rms voltage of the transformer secondary.

12. a) What are the three configurations of a BJT ? Draw the circuits and explain about their current gains α, β and γ.

    b) Explain the operation of a simple inverter.

13. a) Show by way of block diagrams, the connections at the input and output for the four types of negative feedback amplifiers. What are the advantages of negative feedback ?

    b) What are the Backhausen criteria for feedback oscillators ? Draw the circuit diagram of an RC phase shift oscillator and explain its working.

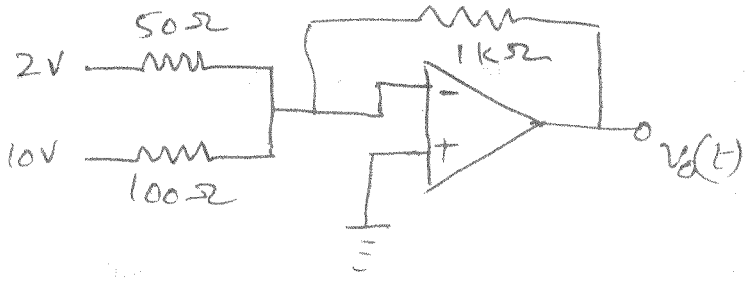
14. a) What are the characteristics of an ideal op-amp ?

    b) Which are the universal gates ? Write truth tables of these.

15. a) Draw a neat labelled diagram of a CRO.

    b) Distinguish between photo diode and LED. How do you get different colors in LED ?

16. a) Obtain the o/p voltage $V_o(t)$ for the circuit shown below, using ideal op amp.



    b) What is the necessity of a saw-tooth generator in a CRO ? Explain by proper sketches.

17. Write short notes on **any three** :

    a) Photo transistor

    b) Hall effect

    c) Diode current equation

    d) Pressure transducers.
