



27/11

Code No. : 3301

FACULTY OF INFORMATICS

B.E. 2/4 (IT) I Semester (Main) Examination, December 2010

MICRO ELECTRONICS

Time : 3 Hours]

[Max. Marks : 75

- Note :* 1) Answer **all** questions from Part – A.
2) Answer **any five** questions from Part – B.

PART – A

(25 Marks)

1. Draw the characteristics of PN junction diode in forward and reverse bias conditions. 2
2. Mention any 3 differences between a PN diode and a Schottky diode 3
3. Calculate β for two transistors for which $\alpha = 0.99$ and 0.98 . For collector currents of 10 mA, find the base currents of the two transistors. 3
4. What is the significance of the names MOSFET and IGFET ? 2
5. Define loop gain of a feedback amplifier. 2
6. What are the advantages of negative feedback ? 3
7. Draw the collector current wave-forms for a sinusoidal input in case of class A and class B output stages. 3
8. Define power conversion efficiency of an output stage. 2
9. Define "slew rate" and "CMRR". 2
10. Draw the circuit for zero level detection using operational amplifier. 3



PART – B

(50 Marks)

- 11. a) Compare the properties of semi conductors, conductors and Insulators. 5
- b) Explain about limiting and clamping circuits. Draw one circuit for each with output waveforms. 5
- 12. Explain CB and CE output characteristics of a BJT and compare them. 10
- 13. With a neat circuit diagram, explain the operation of phase-shift oscillator 10
- 14. Explain the operation of class-B output stage and derive the expression for power conversion efficiency. 10
- 15. a) Explain the operation of mono stable multi-vibrator. 6
- b) Explain how Op-amp can be operated as an adder and a subtractor. 4
- 16. a) Explain the operation of full-wave rectifier circuit. 5
- b) Explain how MOSFET can be used as an amplifier. 5
- 17. Write short notes on :
 - a) MOS power transistors 4
 - b) Negative feedback 3
 - c) Internal capacitances of MOSFET. 3