FACULTY OF INFORMATICS
B.E. 2/4 (IT) I Sem. (New) (Main) Examination, Dec. 2011/Jan. 2012
MICRO 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. Briefly explain the operation of Schottky diode.   3

2. List the applications of cathode ray oscilloscope.   2

3. Compare the doping levels of emitter, base and collector.   2

4. What is pinchoff voltage ? What is its significance ?   3

5. Derive the expression for voltage gain in negative feedback.   3

6. Define Barkhausen criteria.   2

7. List the ideal characteristics of op-amp.   3

8. Draw the circuit for integrator using op-amp.   2

9. What is noise margin ?   2

10. Briefly explain about CMOS logic.   3

PART – B
(50 Marks)

11. a) Explain about clipping and clamping circuits.   6

    b) Explain about conduction in semi-conductors.   4

12. a) Explain about the physical structure and modes of operation of BJT.   6

    b) Explain about different regions of operation of MOSFET.   4

13. a) Discuss the properties of negative feedback.   6

    b) Explain the operation of Hartley oscillator.   4

14. a) Write about the operation of square wave generator. 6

    b) How an op-amp can be used as logarithmic amplifier ? 4

15. a) Explain the CMOS implementation of 2-input NOR gate and exclusive OR gates. 4

    b) Discuss about the basic structure of PUN and PDN. 6

16. a) Explain how a zener diode can be operated as voltage regulator. 5

    b) Draw the small signal equivalent models of BJT. 5

17. Write short notes on :

    a) RC oscillator. 3

    b) CCVS using op-amp. 4

    c) VTC of inverter. 3