Code No. : 5345/S

FACULTY OF INFORMATICS

B.E. 2/4 (IT) I Semester (Suppl.) Examination, June 2012

MICRO ELECTRONICS

Time : 3 Hours] [Max. Marks : 75

Note : *1) Answer* ***all*** *questions from Part – **A**.*

2) ***Any five*** *questions from Part – **B**.*

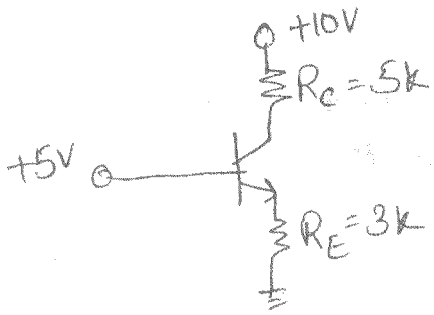
PART – A **(25 Marks)**

1. Briefly explain the operation of varactor diode. **3**
2. If the voltage across a Ge diode is 0.2 V when the current is 1 mA. Find the reverse saturation current. (Assume $1/\eta V_T = 10$ for Ge). **2**
3. Define current amplification factor of BJT in CE configuration. **2**
4. Briefly explain different regions of operation of MOSFET. **3**
5. Define Loop gain. **2**
6. Draw the collector current waveforms of Class – A, Class – B and Class – C amplifiers. **3**
7. Derive the expression for voltage gain of the op-amp in the inverting configuration. **3**
8. Draw the circuit for analog multiplier using op-amp. **2**
9. Draw the voltage transfer characteristic of inverter. **2**
10. Briefly explain about CMOS logic. **3**

PART – B (50 Marks)

11. a) Explain the operation of Bridge Rectifier Circuit. 7
    b) Explain about limiting circuits. 3

12. a) Explain the physical structure and operation of JFET. 6
    b) Find the node voltages and branch currents in the following circuit. ($\beta = 100$). 4



13. a) Explain about the feedback topologies. 5
    b) Explain the operation of class-B amplifiers. 5

14. a) Write about the operation of mono-stable multi-vibrator. 6
    b) How an op-amp can be used as VCCS ? 4

15. Explain about static and dynamic operation of C-MOS inverter. 10

16. a) Discuss about internal capacitances of MOSFET. 4
    b) Write about clamping circuits. 6

17. Write short notes on :
    a) Advantages of negative feedback. 3
    b) Ideal characteristics of op-amp. 4
    c) CMOS Implementation of 2-input EX-OR Gate. 3