

FACULTY OF INFORMATICS

B.E. 2/4 (IT) I-Semester (New)(Main) Examination, November / December 2012

Subject : Micro Electronics

Time : 3 Hours

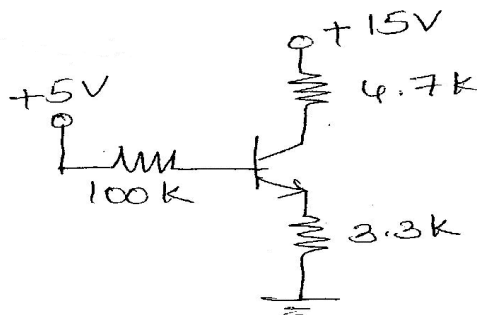
Max. Marks: 75

*Note: Answer all questions of Part - A and answer any five questions from Part-B.***PART – A (25 Marks)**

1. How n-type and p-type semi conductors are formed? (3)
2. List the measurement that can be performed using CRO. (2)
3. Draw the circuit symbols of npn and pnp transistors and compare the doping levels of emitter, base and collector. (3)
4. Write any 3 differences between BJT and FET. (2)
5. Differentiate oscillator and amplifier. (2)
6. Derive the expression for voltage gain of a negative feedback amplifier. (3)
7. Draw the circuit for subtractor using op-amp. (3)
8. Define CMRR and slew rate of an op-amp. (2)
9. Define propagation delay. (2)
10. What are the advantages of CMOS logic? (3)

PART – B (5x10=50 Marks)

- 11.(a) Explain the working of a varactor diode. (4)
(b) Draw and explain the operation of a Bridge Rectifier. (6)
- 12.(a) Explain the physical structure and operation of an npn transistor. (6)
(b) Discuss about the internal capacitances of MOSFET. (4)
13. Define Barkhausen criteria. Explain the operation of RC phase shift oscillator. (10)
14. Explain how a square wave is generated using op-amp. (10)
15. Draw and explain the CMOS implementation of Ex-OR Gate. (10)
- 16.(a) What are the differences between a pn diode and a Schottky Barrier diode. (5)
(b) Find all node voltages and branch current in the following circuit. (5)



17. Write short notes on : (10)
 - (a) CMOS Inverter
 - (b) Op-amp as VCCS
 - (c) Class-B power amplifier