

B.E./B.Tech. (FT) DEGREE END SEMESTER EXAMINATIONS, APR/MAY 2011

BRANCH: GEO INFORMATICS

SECOND SEMESTER

EC 191 - BASIC ELECTRONICS ENGINEERING

REGULATIONS: 2004

Time: 3 Hours

Max.Marks: 100

Answer ALL questions

PART A – (10 x 2 = 20 marks)

1. What is the difference between JFET and a bipolar transistor?
2. Sketch the VI Characteristics of UJT.
3. Give the two Barkhausen conditions required for the sinusoidal oscillations to be sustained.
4. What are the functions of rectifier?
5. Draw the circuit diagram of an inverting amplifier.
6. What are the applications of Timer IC?
7. Prove that $A+A'B = A+B$ using Boolean algebra.
8. What is a Modulo- n counter?
9. Draw the block diagram of AM receiver.
10. What is a transducer? List any two applications of transducer.

PART B – (5 x 16 = 80 marks)

11. a. i. What are the characteristics of diode? Explain the construction and working of TRIAC. (8)
ii. Compare and contrast the Depletion mode MOSFET and Enhancement mode MOSFET. (8)
12. a. i. Discuss in detail about the CB amplifier. (8)
ii. Explain with a circuit, the operation of Hartley oscillator and derive an expression for the frequency of oscillation. (8)

OR

b. i. Derive the expressions for current gain, voltage gain, input impedance and output impedance for an emitter follower circuit. (10)

ii. Explain in detail the applications of SCR. (6)

13. a. Describe in detail the operation of Astable multivibrator. (16)

OR

b. Write short notes on

i. Integrator and Differentiator (6)

ii. Comparator (4)

iii. Timer IC (6)

14. a. i. Simplify $y = \sum_m (1,5,7,13,14,15,17,18,21,22,25,29) + d(6,9,19,23,30)$ using Karnaugh's map. (8)

ii. Simplify the expression 1) $(AB) + (AC)' + (AB'C)(AB+C)$

2) $((AB' + ABC)' + A(B + AB'))'$ (8)

OR

b. Explain J-K flip flop in detail and also discuss the master slave concept. (16)

15. a. Discuss in detail about the principles of FM and PM modulation. (16)

OR

b. Write notes on

1. Gunn diode (5)

2. Piezo electric pressure sensor (5)

3. AM demodulator (6)
