

BASIC ELECTRONICS
2nd Exam/ECE/Comp/CSc/0664/June'2015

Duration: 3Hrs

M.Marks:75

Section A

Note: Attempt all the Questions.

Q1. Do as Directed:

(1x15=15)

- a. The _____ of a transistor is heavily doped.
- b. Efficiency of half wave rectifier is _____.
- c. The width of depletion layer in an unbiased P-N junction depends on _____ level.
- d. MOSFET stands for _____.
- e. A.C. load line of a transistor is steeper than its D.C. load line. (True/False)
- f. In N-type semiconductor, the majority carriers are _____.
- g. The point of intersection of ac and dc load line is called _____.
- h. BJT stands for _____.
- i. A pure semiconductor is called extrinsic semiconductor. (True/False)
- j. When both the junctions of a transistor are forward biased, it is said to be in _____ region.
- k. The point of intersection of A.C. and D.C. load line is called _____.
- l. A JFET is _____ controlled device.
- m. The voltage gain of an emitter follower is either unity or less. (True/False)
- n. When a transistor is operating in the active region, the emitter base junction is _____ biased and collector base junction is _____ biased.
- o. The zener diode is always made _____ biased when using in a circuit.

Section B

Q2. Attempt any five questions.

(6x5=30)

- a. Describe the atomic structure of Silicon and Germanium atoms.
- b. Explain diode as a half wave rectifier with diagram.
- c. Explain the concept of transistor biasing. Also name different types of biasing circuits.
- d. Write a note on CMOS. Also write its advantages and applications.
- e. What do you mean by diode? Write about varactor diode and LED.
- f. What do you mean by A.C. load line and explain its use in calculations of current and voltage gain of a single stage amplifier circuit.
- g. Explain the zener and avalanche breakdown.
- h. What is a filter circuit? Explain the working of LC filter.

Section C

Q3. Attempt any three questions.

(10x3=30)

- I. Draw the circuit diagram of bridge rectifier and explain its working with the help of waveforms.
- II. Explain the construction, working and characteristics of N channel depletion type MOSFET.
- III. Draw the FET amplifier circuit and explain its working.
- IV. Explain the h- parameter, doping, drift current & diffusion current.
- V. Differentiate between CE, CB & CC amplifier. Explain CE configuration.
- VI. Differentiate between conductor, insulator and semiconductor on the basis of energy level diagram. Also write about N type and P type semiconductor.