18-14

Exam.Code:0905
Sub. Code: 6658

1128
B.E. (Electrical and Electronics Engineering)
First Semester
ECE-102: Introduction to Electronics
(Common with EC)

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) In the cut-off region, how are the base-emitter and collector-base junctions of a transistor biased?

b) How is a forward bias condition established?

c) What do you mean by the excitation table of a flip flop?

d) What are the basic building blocks of an op-amp?

e) What is the difference between analog and digital communication? (5x2)

UNIT – I

II. With the help of diagrams, explain the construction and the operation of a forward biased npn junction. (10)

III. What are clippers? Illustrate the response of a series clipper to different types of alternating waveforms. (10)

IV. a) Draw the base characteristics for a common-emitter silicon transistor and show its cutoff, active and the saturation region.

b) Minimize th6 following function and realize using minimum number of gates:
$f = \Sigma m\ (0, 1, 3, 5, 6, 8, 9, 10, 12, 15)$ (2x5)

UNIT – II

V. What is the function of a RAM? Show the construction of a 1-bit read/write memory cell using flip flops. (10)

VI. What is an op-amp? Explain the basic circuit of an op-amp. What are offset currents and voltages? (10)

VII. What is the need for modulation in a communication system? Where is analog communication used? Which type of application prefers digital communication and why? (10)

x-x-x