Exam. Code: 0933
Sub. Code: 6658

2123

B.E. (Electrical and Electronics Engineering)

Third Semester

PC-EE-303: Analog Electronics

Time allowed: 3 Hours Max. Marks: 50

***NOTE**: Attempt <u>five</u> 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) How ideal diode works as a switch. Plot its VI characteristics.

b) Why common collector can be used as a buffer amplifier? List two other applications.

c) Which configuration of MOSFET has infinite input resistance and low voltage gain?

d) Why FETs are called as voltage controlled devices and BJTs as current controlled devices.

e) If two inputs to a differential amplifier is 150 and 140μV, calculate output voltage if gain is 2000. (5x2)

UNIT - I

II. a) Find Vdc(out)for a HWR if the rms value of voltage is 110V at 50Hz and its turns ratio is 10:1. Consider use of silicon diode. .

b) A FWR is fed from a transformer with centre tapped secondary winding. The rms voltage from either end of secondary to centre tap is 50V. If the forward resistance of diode is 15 Ω and secondary winding resistance is 20Ω and load resistance is 500 Ω, calculate the ripple factor and the efficiency. (10)

III. Draw a h-parameter model for a CE BJT amplifier. Calculate all the h parameters such as voltage gain, current gain, input impedance and output impedance for the CE model of transistor. (10)

IV. Draw the drain and transfer characteristics for N channel MOSFET. Draw its symbolic representation and explain the parameters plotted in the graph. (10)

P.T.O.

UNIT - II

V. What is the need of cascading in amplifiers? Draw a circuit of a differential amplifier in its best configuration and explain its working. What are the advantages and disadvantages of such amplifiers over other amplifiers? (10)

VI. Calculate the input and output power for a power amplifier. The operating point is at 250mA, 8V and output current swings between 450mA and 40mA while output voltage is given from 15V to 1V. (10)

VII. How op amp can be used as a hysteretic comparator. Plot its waveforms for positive and negative reference voltages. Also explain a circuit which will be formed when the reference voltage will be 0V. (10)

x-x-x