Exam. Code: 0933
Sub. Code: 33743

2076

B.E. (Electrical and Electronics Engineering)

Third Semester

PC-EE-303: Analog Electronics

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

1. Answer the following:-
   a) How avalanche breakdown is different from Zener breakdown? Show both mechanisms in the I-V plot labelling the breakdown regions for both.
   b) Name the different biasing arrangements that are applied to BJTs?
   c) How MOSFETs are different from BJTs? State four differences between them.
   d) Sketch ideal voltage transfer characteristics for op-amps.
   e) Why sinusoidal oscillators are called as linear oscillators? Give one example. (5x2)

UNIT - I

2. Define the following terminologies with their values for half wave and full wave rectifiers: Peak Inverse Voltage, TUF, % regulation and Ripple factor. (10)
3. Perform the small signal analysis for a BJT. Using the hybrid equivalent model, calculate the values of voltage gain, current gain, input impedance and output impedance. (10)
4. a) Explain the application of a MOSFET as an amplifier.
   b) Plot transfer characteristics for n-channel MOSFET. (2x5)

UNIT - II

5. What are power amplifiers? Explain the various modes. Derive the expression for calculation of efficiency of class B power amplifiers. (10)
6. Draw and explain the RC phase shift oscillators. Write the equation for calculating the frequency of oscillation in these oscillators? (10)
7. a) A 3 bit ADC is designed to digitize analog signal from 0V to 10V. Calculate the binary output corresponding to an input of 6V?
   b) How a Zero Crossing detector different from hysteresis comparator. Sketch the circuits and explain their working. (3,7)

x-x-x