Exam.Code:0906
Sub. Code: 33275

2056
B.E., 2nd Semester
EC-204: Electronic Devices and Circuits

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. Draw the diagrams wherever required.*

x-x-x

1. Attempt the following:-
   a) Give the primary reason that why Field-Effect Transistors (FETs) are referred to as 'unipolar' devices.
   b) For a JFET, what will be the effect on the drain current when the gate-to-source voltage reaches the pinch-off voltage? Explain with the help of a diagram?
   c) Give an application of direct coupled Amplifier.
   d) Explain amplitude distortion in amplifier?
   e) In the small-signal hybrid (h-parameter) model of a BJT, what does the parameter hie represent? How it is related to other h parameters.
   f) How amplification of a signal is achieved with a FET?
   g) Mention the operating point and conduction angle of Class A amplifier?
   h) What is the need for biasing in Transistor Amplifier?
   i) Explain the process of stabilization against variation in Ico, Vbe and beta.
   j) What is Dynamic Resistance? Give the method to measure it. (10x1)

UNIT - I

2. a) What are the various biasing methods used for BJT biasing .Which biasing methods provides the most effective stabilization of the operating point against variations in temperature and β. Explain that method. (3+2)

   (b) Derive the expression for current gain, input impedance and voltage gain of a CE Transistor Amplifier. (5)

3. a) Explain the voltage divider biasing of MOSFET.

   b) Explain the analysis of transistor amplifiers using h-parameters. (5+5)

P.T.O.

4. (a) Discuss about the Transistor operation and Characteristics in CC configurations.

   (b) Explain about Thermistor and Sensistor compensation. (5+5)

UNIT - II

5. (a) With neat circuit diagram, explain the working of class AB power amplifier and state the advantages of using MOSFET over BJT.

   (b) Explain BJT based Cascade amplifier and state its advantages. (5+5)

6. (a) Explain the frequency response of multistage amplifier.

   (b) Frequency Response of single stage CE amplifier (5+5)

7. (a) Draw the circuit diagram of a Wien Bridge Oscillator using an Op-Amp or BJT. Explain its working principle in detail.

   (b) Derive the expression for the frequency of oscillation and the condition for sustained oscillations. (5+5)

x-x-x