2007 ANNA UNIVERSITY
B.E/B.TECH DEGREE EXAMINATION
ELECTRONIC CIRCUIT
(ELECTRICAL AND ELECTRONICS ENGINEERING)

MAY-2007

TIME-3HOUR
MARKS-100

ANSWER ALL QUESTIONS

PART - A [10X2=20]

1.Draw the small signal equivalent (hybrid equivalent) circuit of CE amplifier along with amplifier circuit.

2.A fixed bias transistor circuit has operating point (6 V, 1mA) with VCC = 10 and hfe = 100. Calculate the collector resistance Rc and base bias resistance Rs.

3.What is the need for differential amplifier?

4.Draw the circuit diagram of a stagger tuned amplifier.

5.With block diagram of current series feedback topology, obtain expression for Rif.

6.What type of feedback is used in oscillator? Why?

7.Draw a slicer circuit and explain its slicing operation.

8.Sketch the output waveform of a Schmitt trigger circuit for sine wave input of 12V peak to peak if UTP = 5V and LTP = 3V.

9.Define ripple factor and what is its importance in filter circuits.

10.Define line regulation and load regulation.

PART - B [5X16=80]

11.Define Class B operation with neat circuit. Explain complementary symmetry Class-B power amplifier. Derive expression for its efficiency. What are its merits and demerits?
                    (OR)
a) Prove that self-bias is better bias compared to collector to base bias.

b) Draw a Darlington amplifier circuit and mention its advantages.

c) Define power amplifier and mention its types. (Marks:2)

12. Derive the expression for the differential and average voltage gain of a dual input dual output differential amplifier and explain the modification done to improve its CMRR.
                    (OR)
Draw the circuit diagram of a single tuned amplifier and explain its operation. What other tunings are practically applied and draw the circuit for each one of them? What improvements are achieved as a result?

13. Draw the circuit diagram of an oscillator, which produces audio frequencies using two-stage amplifier. Explain its operation. Derive expression for its frequency of oscillation.
                    (OR)
Explain the characteristics (Effect) of negative feedback amplifiers.

14. Define one-shot multivibrator. Explain the operation of one-shot multivibrator with charging and discharging constant. Also derive its time period and frequency of oscillation.
                    (OR)
Explain the operation and of Schmitt trigger circuit and design calculation

15. a) Describe the working of full wave rectifier with LC filter and derive the expression for ripple factor.

b) Calculate the inductance to be used in L filter of FWR at 60Hz to provide Dc output with ripple of 4% at 300 ohms load.

                    (OR)

a) Explain the operation of transistorized series regulator

b) Design simple Zener regulator with following specification. Vo = 20V, Vin = (20 – 30) V, IL (max) = 50mA.

c) Explain the operation of Zener shunt regulator.