QUESTION BANK

B.E. SEM IV EC

GUJARAT UNIVERSITY

Subject Name: EDC-II

Each Question is of 10 Marks.

Que:1 Draw the circuit diagram of voltage shunt amplifier and derive an expression for input and output impedance.

Que:2 What are the advantages of negative amplifiers? Explain them.

Que:3 Draw the circuit diagram of voltage series amplifier and derive an expression for input and output impedance.

Que:4 What are the advantages and disadvantages of positive amplifiers? Explain them.

Que:5 Draw the circuit diagram of current shunt amplifier and derive an expression for input and output impedance.

Que:6 Explain the concept of positive feedback. Also derive a term for gain with feedback.

Que:7 Draw the circuit diagram of current series amplifier and derive an expression for input and output impedance.

Que:8 Compare the advantages and disadvantages of negative and positive feedback amplifier.

Que:9 Discuss the Barkhausen criterion as applied to electronic feedback oscillators. Why are LC oscillators not suitable for low fequency apllication?

Que:10 Explain the working of Wein Bridge Oscillator with the help of circuit diagram. Derive the expression for frequency of oscillation. A wein bridge oscillator has a frequency of 500 kHz, if the value of C is 100pf, determine the value of R.

Que:11 Derive the expresion for the maximum efficiency of Class-B transformer coupled push pull amplifier.

Que:12 Draw and explain complementary symmetry class B push pull amplifier.

Que:13 Explain the working of Wein Bridge Oscillator with the help of circuit diagram. Derive the expression for frequency of oscillation. A wein bridge oscillator has a frequency of 500 kHz, if the value of C is 1000pF, determine the value of R.

Que:14 What is power amplifier. Give the classification of power amplifier. Compare directly coupled class A and transformer coupled class A amplifier.

Que:15 An amplifier has a midband gain A_{vmid} of 1000 with f_L=50Hz and f_H=50Khz. If 5% feedback is applied then calculate
   1) Gain with feedback
   2) f_L with feedback
   3) f_H with feedback

Que:16 Derive the expression for maximum efficiency transformer couple class A amplifier.

Que:17 Explain basic circuit principles for current cotrolled negative resistance device circuit, load line and equations.

Que:18 What is tuned amplifier? Draw and explain double tuned amplifier.

Que:19 With the help of V-I characteristics and load line, explain the monostable operation current controlled Negative resistance device.

Que:20 Give the step by step procedure for identifying topology of feedback in an amplifier.

Que:21 Design the RC elements of a Wien bridge oscillator for operation at fo =10kHz.

Que:22 Which amplifiers are classified as power amplifier? Explain the general features of power amplifiers.

Que:23 Draw the direct coupled class A amplifier and find the maximum efficiency.

Que:24 Write short notes on:
  (i) LC Oscillator
  (ii) RC phase shift Oscillator
  (iii)Wein Bridge Oscillator

Que:25 What is CMRR? Explain diode compensation technique for improving CMRR for emitter coupled differential amplifier.

Que:26 A current series feedback amplifier circuit has an overall transconductance gain of -1mA/V, a voltage gain of -4, and sensitivity of 50. If Rs=1KΩ ,hfe=150 and rbb' is negligible, find a) R_e b) R_L c) R_{if}

Que:27 For a transistor colpitt oscillator, L3=100µH, C1=0.005µF and C2=0.01µF.Calculate the frequency of oscillation generated.

Que:28 In Hartley oscillator calculate L2 if L1=15mH, C=50pF, mutual inductance of coil is 5µH and frequency of oscillation is 168Hz.

Que:29 Explain any two positive biased clamper ciruit with necessary diagram and waveform.

Que:30 Explain any two negative biased clamper ciruit with necessary diagram and waveform.

Que:31 Draw and explain transistor shunt voltage regulator with suitable diagram.

Que:32 With the help of circuit diagram and waveform explain the application of a UJT as bistable circuit and monostable circuit.

Que:33 Draw and explain shunt voltage regulator with necessary circuit and equation.

Que:34 Explain double biased clipper with necessary ciruits and waveforms.

Que:35 Explain the emitter coupled clipper and draw its transfer characteristics.

Que:36 With the help of circuit diagram explain the application of UJT as (i) Sawtooth generator (ii) atable circuit.

Que:37 Write short notes on:
  (1) R-2R ladder type DAC
  (2) Weighted resistor type DAC

Que:38 Write short notes on:
  (1) Counter type A/D converter
  (2) Flash-type A/D converter

Que:39 Write short notes on:
  (1) Switched capacitor type DAC
  (2) Successive approximation type ADC

Que:40 Draw and explain block diagram of shunt regulator also explain zener and transostorized shunt regulator.