Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year II Semester Regular Examinations July-2021
ELECTRONIC CIRCUIT ANALYSIS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

1 a Sketch the Hybrid-pi model and explain the significance of each and every   L3   **6M**
      component in it.
   b Short circuit CE current gain of a transistor is 25 at a frequency of 2MHz. If   L3   **6M**
      f_β = 200KHz, calculate (i) f_T (ii) h_{fe} (iii) Find |Ai| at frequency of 10MHz
      and 100MHz.

OR

2 a Construct the block diagram of n-stage cascaded amplifier and analyze its   L3   **8M**
      various parameters.
   b Define Darlington Pair and list its applications.   L1   **4M**

UNIT-II

3 a Explain the basic concept of Feedback in amplifier with suitable block   L2   **8M**
      diagram.
   b List the characteristics of negative feedback amplifiers.   L1   **4M**

OR

4 a An RC coupled amplifier has a mid-frequency gain of 200 and a frequency   L5   **6M**
      response from 100 Hz to 20 KHz. A negative feedback network with β =
      0.02 is incorporated into the amplifier circuit. Estimate the new system
      performance.
   b Compare various types of feedback amplifiers.   L4   **6M**

UNIT-III

5 a Establish the condition for oscillation with suitable diagram.   L3   **5M**
   b Construct RC phase shift oscillator using BJT and deduce its expression for   L4   **7M**
      frequency of oscillations.

OR

6 a Explain working of Crystal oscillator and deduce the expression for   L4   **8M**
      frequency of oscillations.
   b In the Colpitts oscillator, C1 = 0.2µF and C2 = 0.02 µF. If the frequency of   L3   **4M**
      oscillation is 10kHz, Calculate the value of inductor.

UNIT-IV

7   **a**   Discuss about Transformer coupled Class A Power Amplifier with diagram and determine its Maximum efficiency.   L3   **6M**

    b   A Class B push pull amplifier drives a load of 18Ω, connected to the secondary of ideal transformer. The Vcc is 25V. If number of turns on primary is 150 and secondary is 50. Determine maximum power output, DC power input and efficiency.   L3   **6M**
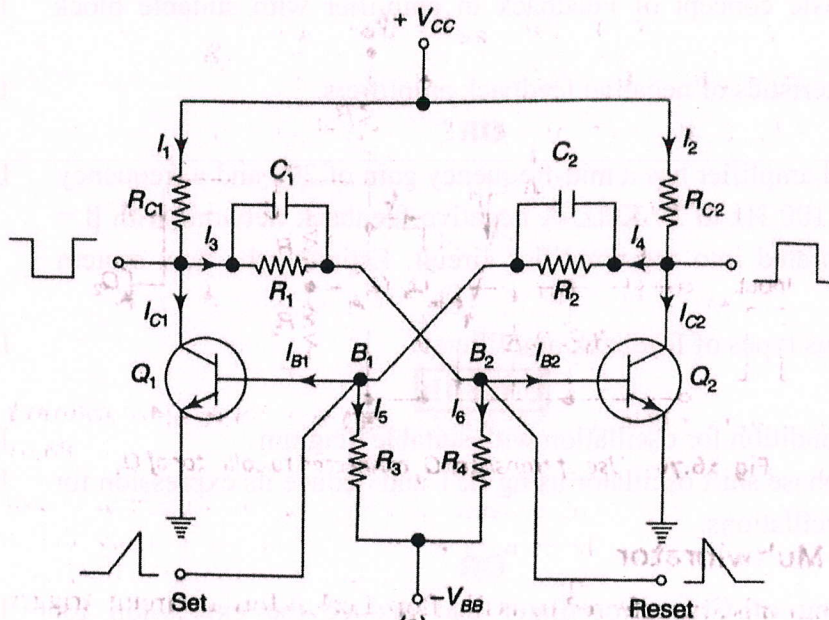
OR

8   **a**   Explain the effect of cascading single tuned amplifiers on bandwidth.   L2   **6M**

    b   With circuit diagram, describe the stagger tuning operation. Sketch necessary graph.   L3   **6M**

UNIT-V

9   **a**   What is a Monostable multivibrator? Explain its working with the help of waveforms.   L2   **7M**

    b   Compare Astable and Monostable multivibrators.   L4   **5M**

OR

10   **a**   Explain a triggering method for Bistable multivibrator.   L2   **6M**

    b   Calculate the stable state currents and voltages for the bistable multivibrator having VCC = 12 V, VBB = -12 V, RC1 = RC2 = 2.2kΩ, R1=R2 = 15kΩ, R3=R4 = 100kΩ, C1 = C2 = 0.1μF. Assume that a transistor having a minimum hfe of 20 is used.   L4   **6M**

*** END ***