**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**
(AUTONOMOUS)
B.Tech II Year II Semester Supplementary Examinations May/June-2024
**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 component in it. | CO1 | L3 | 6M |
| | b | Deduce the expression for Emitter diffusion capacitance of CE transistor at high frequency. | CO1 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | | With the help of necessary circuit diagrams and approximations, deduce the expression for CE short circuit current gain and derive the relation between fβ and fT. | CO2 | L4 | 12M |

### UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | | Deduce the expressions of Gain, input and output resistances for a Voltage Shunt feed back amplifier. | CO2 | L4 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | Explain the effect of negative feedback on input resistance for Current shunt and Voltage shunt Feedback amplifier. | CO2 | L2 | 6M |
| | b | Compare various types of feedback amplifiers. | CO2 | L4 | 6M |

### UNIT-III

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|---|---|---|---|---|---|
| 5 | a | Establish the condition for oscillation with suitable diagram. | CO2 | L3 | 8M |
| | b | Classify various types of oscillators. | CO1 | L2 | 4M |

**OR**

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|---|---|---|---|---|---|
| 6 | | Analyze an LC Oscillator for a necessary equation to determine criteria for oscillations. | CO2 | L4 | 12M |

### UNIT-IV

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|---|---|---|---|---|---|
| 7 | a | Discuss about Transformer coupled Class A Power Amplifier with diagram and determine its Maximum efficiency. | CO4 | L3 | 6M |
| | b | A Class B push pull amplifier drives a load of 16Ω, connected to the secondary of ideal transformer. The Vcc is 25V. If number of turns on primary is 200 and secondary is 50. Determine maximum power output, DC power input and efficiency. | CO4 | L3 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | | Discuss about Double Tuned Amplifier with neat diagram and deduce the expression for its bandwidth. | CO2 | L4 | 12M |

### UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | What is a Monostable multivibrator? Explain its working with the help of waveforms. | CO2 | L2 | 6M |
| | b | Deduce the expression for pulse width, T of collector coupled Monostable multivibrator. | CO2 | L4 | 6M |

**OR**

10   a   Calculate the component values of a Monostable multivibrator   **CO3**   **L4**   **6M**
developing an output pulse of 140μs duration. Assume hFEmin =20,
Ic(sat) =6 mA, VCC=6 V, VBB= -1.5V.

    b   Design and draw a saturated collector coupled monostable multivibrator   **CO3**   **L6**   **6M**
for the following specifications: VCC = 10 V, VBB = -5 V, pulse
duration = 12ms, IC(ON)= 2 mA and two NPN transistors with
minimum hfe =100 and ICBO=0.

*** **END** ***