R16

Code No: 133AQ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year I Semester Examinations, November/December - 2018

ELECTRONIC CIRCUITS

(Electrical and Electronics Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) Write the effect of Distortion in Amplifier circuits. [2]
b) Illustrate frequency response of BJT Amplifier. [3]
c) Write the condition for oscillations and its sustenance. [2]
d) How does negative feedback effect the input and output resistances? [3]
e) Mention the achievable Maximum Efficiency of Class - A Amplifier. [2]
f) Write about the concept of Thermal Runway and its counter measures. [3]
g) What is a negative peak clamper? [2]
h) Discuss in brief about Clipping at Two Independent Levels. [3]
i) List the Transistor Switching Times. [2]
j) Distinguish between bistable, monostable and astable mutivibrators. [3]

PART-B

(50 Marks)

2.a) Discuss the variation of A_I ,A_V ,R_i, and R_o with R_S and R_L in Common Emitter configuration.
b) Discuss the significance of Miller's theorem in transistor circuit analysis. [5+5]

OR

3. Design and explain the circuit diagram of Common Emitter amplifier and then derive an expression for the Voltage gain, current gain, Input Impedance and output Impedance. [10]

4. Draw the circuit diagram of a current series feedback and derive expressions for Voltage gain, output resistance and input resistance. [10]

OR

5. Derive the condition for sustaining the oscillations for a Colpitts Oscillator and also frequency of oscillators. [10]

6.a) Explain the operation of a complimentary symmetry class-B power amplifier.
b) Write the methods to avoid the cross over distortion in power amplifiers circuit. [7+3]

OR

7.a) Mention about the Phase Inverters and their applications in brief.
b) Discuss the requirements of heat sink and there types for large signal amplifiers. [5+5]

8.a) Discuss about the practical Clamping using Diode with different inputs.
b) Draw the basic circuit diagram of a DC restorer circuit and explain its operation. [5+5]

OR

9.a) Explain the circuit diagram of an emitter-coupled clipping circuit with its Characteristics.
b) Draw the RC high pass circuit and explain its working with step voltage input. [5+5]

10.a) Explain the operation of a diode as a switch and discuss its piece wise linear Characteristics.
b) Write a note on the breakdown Voltage Consideration of Transistor. [5+5]

OR

11. Draw and explain the operation of Schmitt Trigger with its waveforms and derive the expression for pulse width. [10]

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