

R15

Code No: 124AE

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B.Tech II Year II Semester Examinations, December - 2017****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) Classify negative feedback amplifiers. [2]
- b) Classify amplifiers. [3]
- c) Calculate the power gain in decibels if $P_o = 100$ mW, $P_i = 5$ mW. [2]
- d) Demonstrate the effect of the Miller effect capacitance. [3]
- e) Draw the transfer characteristics of positive clipper circuit. [2]
- f) Compare all types of multivibrators. [3]
- g) Give the classification of Power Amplifiers. [2]
- h) Compare and Contrast the Voltage and Power Amplifiers. [3]
- i) What is the difference between diode switch and transistor switch? [2]
- j) Illustrate the piece-wise linear Diode characteristics. [3]

PART-B**(50 Marks)**

2. Draw the circuit diagram and equivalent circuit of CB amplifier using h-parameters derive the expression for current gain, voltage gain, input resistance and output resistance. [10]

OR

3. Enumerate the effects of negative feedback on the various characteristics of the amplifier. [10]

4. Assess the effect of coupling and bypass capacitors on the low frequency response of FET amplifier. [10]

OR

5. What factors define 3-dB cutoff point at the high-frequency end of BJT amplifier? Assess their effect on high-frequency response of BJT amplifier. [10]

- 6.a) Derive the expressions for UTP and LTP of Schmitt Trigger.
- b) What is mean by triggering? Give any one triggering circuit. [6+4]

OR

- 7.a) Design the positive and negative peak clampers circuits and then explain their operation with the help of input and output waveforms.
- b) Draw the circuit diagram of an emitter-coupled clipping circuit and draw its transfer characteristics. [6+4]

8. Discuss the principle operation of Transformer coupled Class-B push pull Amplifier with the help of circuit diagram and then prove that its maximum conversion efficiency is 78.5%. [10]

OR

- 9.a) Describe the response of a Low-Pass RC circuit for step input with necessary equations and waveforms.
b) When high pass circuit acts as differentiator? Derive its condition. [7+3]
- 10.a) Explain the phenomenon of “Latching” in a transistor switch.
b) Discuss the storage and transition switch times of a diode. [4+6]

OR

- 11.a) Discuss the terms pertaining to Transistor Switching characteristics:
i) Rise Time ii) Delay Time iii) Turn-On Time iv) Storage Time v) fall Time and vi) Turn-Off Time.
b) Explain how transistor saturation parameters vary with temperature. [6+4]

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