Code No: 124AE **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, May - 2019
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) What is mean by distortion in amplifiers? [2]
b) List the general characteristics of Negative feedback amplifier. [3]
c) What frequency is one octave above 5 kHz and one decade below 10 kHz? [2]
d) What is square wave testing? [3]
e) Define stable and quasi-stable states. [2]
f) Illustrate the transfer characteristics of negative clipper circuit. [3]
g) Draw the response of a RC High-Pass Circuit for Step input if time constant is low. [2]
h) Summarize the advantages and dis-advantages of Push-Pull Amplifier. [3]
i) Draw the piece-wise linear equivalent circuit of a Diode. [2]
j) Draw the transistor as a switch circuit diagram. [3]

PART-B

(50 Marks)

2. Draw the diagram of CC Amplifier and then using the exact model derive the expressions for current gain, voltage gain, input impedance and output impedance of CC Amplifier. [10]

OR

3. Draw the circuits of Current series and voltage shunt feedback amplifiers and then determine the corresponding input impedance and output impedance. [10]

4.a) The input power to a device is 10,000 W at a voltage of 1000 V. The output power is 500 W and the output impedance is 20 Ω.
i) Find the power gain in decibels.
ii) Find the voltage gain in decibels
b) Explain low frequency analysis of BJT amplifier by giving the corresponding equations and waveform. [4+6]

OR

5. Determine the effect of coupling and bypass capacitors on the low frequency response of BJT Amplifier with proper equations. [10]

6. What is a monostable multivibrator? Explain with the help of a neat circuit diagram the principle of operation of a monostable multivibrator. Draw the waveforms at collector and base of both transistors. [10]

OR

7.a) Give the circuits of Positive and Negative types of shunt clippers and explain their operation with the help of input and output waveforms.

b) State and Prove the Clamping circuit theorem. [6+4]

8.a) Discuss the principle operation of series-fed Class-A Amplifier with the help of circuit diagram and then prove that its maximum conversion efficiency is 25%.

b) Briefly explain the concept of Thermal Stability. [6+4]

OR

9.a) Obtain the response of a High-Pass RC circuit for Square input and then derive the expression for % Tilt.

b) When the low pass RC circuit acts as integrator? Derive its condition. [6+4]

10.a) Discuss in detail the Switching characteristics of transistor and define all switching times.

b) Describe how the transistor switch behaves in saturation. [7+3]

OR

11.a) Explain how diode acts as switch? Define diode forward recovery time and Reverse recovery time.

b) Briefly comment on break down voltage consideration of Transistor. [7+3]

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