Code No: 114AE

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, April - 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) What is an amplifier? [2]
 b) What are the various h-parameters for a CE transistor? [3]
 c) What is Miller effect? [2]
 d) Write a short note on frequency response of BJT amplifiers. [3]
 e) What is the need of triggering? [2]
 f) Draw the transfer characteristics of negative clipper. [3]
 g) What are the drawbacks of transformer coupled power amplifiers? [2]
 h) Define Thermal Runway. [3]
 i) Define rise time of transistor. [2]
 j) Explain break down voltage consideration of transistor. [3]

PART-B

(50 Marks)

2. Draw the circuit diagram of Common Collector amplifier. Derive the expression for A_I, A_V, R_i, and Ro in terms of h - parameters of CE transistor. [10]

OR

3.a) Draw and explain the Single Stage CE Transistor Amplifier Response along with output wave forms.
 b) Explain the following terms in detail
 i) Gain - Bandwidth Product
 ii) Current Gain with Resistive Load. [6+4]

4.a) Discuss the effect of coupling capacitors of a CE amplifier on the overall frequency response of the amplifier.
 b) Draw and explain the effect of coupling and bypass capacitors on low-frequency response of FET Amplifier. [5+5]

OR

5.a) Draw and explain the High frequency response of BJT amplifiers.
 b) Write a short note on square wave testing. [7+3]

6.a)   Explain the effect of diode characteristics on clamping voltage.
  b)   Draw the circuit of Mono-stable Multivibrator and explain its operation.   [5+5]

OR

7.a)   State and prove clamping circuit theorem.
  b)   Draw the circuit of Bi-stable Multivibrator and explain its operation.   [5+5]

8.a)   Prove that for any periodic input waveform the average level of the steady state output signal from the RC high pass circuits is always zero.
  b)   Obtain the response of Low-pass RC circuit for square-input with different time-constants.   [10]

OR

9.   Draw the Class-A Power Amplifier and explain operation in detail with necessary equations. Also derive the expression for maximum conversion efficiency.   [10]

10.a)   What do you mean by delay time of a transistor? What factor contributes to it?
   b)   Write about Saturation parameters of Transistor and their variation with temperature.   [5+5]

OR

11.   Write short notes on:
       a) Diode switching times
       b) Switching characteristics of transistors.   [5+5]

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