Code No: 124DN **R15**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, December - 2017
PULSE AND DIGITAL CIRCUITS
(Common to ECE, ETM)

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 Differentiator and draw the circuit diagram of a Differentiator. [2]
b) What is Attenuators and explain its application? [3]
c) List out different applications of Clipper. [2]
d) Draw the circuit diagram of Transistor clipper and explain its operation. [3]
e) What is an ideal diode? How does an actual diode differ from an ideal diode? [2]
f) Draw and explain how transistor used as a switch? [3]
g) Define UTP and LTP of a Schmitt trigger. [2]
h) What is Multivibrator and explain different types of multivibrtators? [3]
i) Draw the circuit diagram of AND gate using Diodes. [2]
j) List out the merits and demerits of CML logic. [3]

PART-B

(50 Marks)

2.a) Design a High pass RC circuit when R=20KΩ, and F=50Hz, and explain its operation along with wave forms.
b) What is Ringing Circuit and explain its operation along with circuit diagram. [5+5]

OR

3.a) Design low pass RC circuits for their response for Square wave is applied to it along with circuit diagrams.
b) Draw the RLC parallel circuit when step input is applied to it and explain its operation. [5+5]

4.a) Draw the circuit diagram of limiter using Zener diode and explain its operation along with transfer characteristics.
b) What is synchronized clamping circuit and explain the operation along with circuit diagram. [5+5]

OR

5.a) Define Clamping Circuit Theorem and explain its operation when the capacitor value is very large.
b) List out the few differences between clipper and clamper with examples. [5+5]

6.a) Draw the circuit diagram of unidirectional diode AND gate with multiple control signals and explain its operation.

b) List out and derive the different Temperature variation of Saturation Parameters of a transistor. [5+5]

OR

7.a) Draw and explain the circuit diagram of two-input sampling gate that avoids loading on the control signal.

b) Explain the terms Rise time, fall time, Hold time of a transistor characteristics in detail. [5+5]

8.a) What is hysteresis and explain the different methods for avoiding hysteresis in Schmitt trigger in detail.

b) Draw the circuit diagram of Emitter-coupled monostable multivibrator and explain its operation in detail. [5+5]

OR

9.a) Draw the circuit diagram of Transistor Bootstrap Time Base Generator and explain its operation in detail.

b) Draw the circuit diagram of Transistor Miller Time Base generator and explain its operation. [5+5]

10.a) Draw the circuit diagram of Synchronization of Astable Blocking Oscillators and explain its operation.

b) List out the few comparisons of TTL, RTL and CML logic families. [5+5]

OR

11.a) Explain the concept of Frequency division in Sweep Circuit along with circuit diagram.

b) Draw and explain the block diagram of frequency divider without phase jitter. [5+5]

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