Code No: 114DN

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, February -2024
PULSE AND DIGITAL CIRCUITS
(Electronics and Communication Engineering)

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

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A
(25 Marks)

1.a)	What do you mean by linear network?	[2]
b)	Explain an uncompensated attenuator.	[3]
c)	What do you mean by double ended clipper?	[2]
d)	Distinguish between comparators and clipping circuits.	[3]
e)	When transistor acts as a switch?	[2]
f)	Explain the effect of pedestal in gate circuit.	[3]
g)	What are the applications of Schmitt trigger?	[2]
h)	Write down the application of diode Multivibrator.	[3]
i)	What do you mean by synchronization?	[2]
j)	Compare MOS and CMOS families.	[3]

PART - B
(50 Marks)

2.a) Derive an expression for the rise time of the output of a low pass RC circuit excited by a step input.
b) Draw the RLC parallel circuit when step input is applied to it and explain its operation. [5+5]

OR

3.a) A symmetrical square wave whose peak to peak amplitude is 2μ and whose average value in zero is applied to an RC integrator circuit. The time constant is equal to half the period of square wave, find the peak to peak value of output amplitude.
b) Explain the operation of RC high pass circuit with ramp input with circuit diagram. [5+5]

4.a) State and prove the clamping circuit theorem.
b) Classify different types of clipper circuits. Give their circuits and explain their operation with the aid of transfer characteristics. [5+5]

OR

5.a) What is synchronized clamping circuit? Explain its operation along with circuit diagram.
b) Explain the operation of a double diode clipper with help of circuit diagram and waveforms. [5+5]

6.a) With the neat circuit diagram, explain the operation of unidirectional sampling gate for multiple inputs.

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

OR

7.a) Explain the Transistor breakdown in detail.

b) With the help of a neat circuit diagram and waveforms, explain the operation of Four diode sampling gate. [4+6]

8.a) What is hysteresis? Explain how hysteresis can be eliminated in a Schmitt trigger?

b) Draw the circuit diagram of Transistor Miller Time Base generator and explain its operation. [4+6]

OR

9.a) Draw the circuit diagram of Emitter-coupled monostable multivibrator and explain its operation in detail.

b) Explain how the deviation from linearity is expressed in terms of errors. [4+6]

10.a) Draw a simple current sweep circuit and explain its working with the help of diagrams.

b) Why totem pole is used in DTL? Draw the circuit diagram and explain a DTL 2-input NAND gate with this. [5+5]

OR

11.a) With a neat circuit diagram explain the operation of a TTL tristate output.

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

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