Code No: 134CC

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, December - 2019

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)	Sketch the output response of RC high pass circuit for a pulse input.	[2]
b)	Explain about RC low pass circuit as integrator.	[3]
c)	Draw transient response of a diode clamping circuit.	[2]
d)	Discuss the effect of diode characteristics on clamping voltage.	[3]
e)	Draw diode as a switch circuit.	[2]
f)	Discuss the applications of transistor.	[3]
g)	List out the applications of Time base generators.	[2]
h)	Define different sweep error.	[3]
i)	Give the basic operational principles of sampling gates.	[2]
j)	Compare RTL and DTL families.	[3]

PART-B

(50 Marks)

2.a) Explain the operation of RC ringing circuit with help of circuit diagram.
b) Derive an expression for the output levels under steady state conditions of a LP circuit excited by a ramp input. [5+5]

OR

3.a) Discuss the criteria for good differentiation and integration.
b) Explain about uncompensated attenuators and how compensation is achieved. [5+5]

4.a) Draw the circuit of a clipping circuit with diode and explain.
b) Draw a negative clamping and explain it. [5+5]

OR

5.a) Explain any two applications of voltage comparators.
b) State and derive clamping circuit theorem. [5+5]

6.a) Explain how transistor acts as a switch? Design transistor switch circuit.
b) Discuss about the piece-wise diode characteristics of a diode. [5+5]

OR

7.a) Discuss diode switching times in detail.
b) Explain about SCS. [6+4]

8.a) Design Schmitt trigger. Explain its operation with help of circuit diagram and waveforms.

b) Explain the operation of a current sweep circuit with help of diagram and waveforms. [5+5]

OR

9.a) Draw and explain the base and collector waveforms of a bistable multivibrator.

b) Explain the operation of Transistor Miller Time base generator. [5+5]

10.a) Realize 2-input NAND using TTL logic.

b) Realize the OR gate using discrete components. [5+5]

OR

11.a) Explain about DTL logic family in detail, with one example.

b) Compare TTL and MOS technologies. [5+5]

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