R16

Code No: 134CC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, December - 2018

PULSE AND DIGITAL CIRCUITS

(Electronics and Communication 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 linear wave shaping? Give some examples.	[2]
b)	Explain an uncompensated attenuator.	[3]
c)	State clamping theorem.	[2]
d)	Draw the transfer characteristics of two level clipper.	[3]
e)	Draw a transistor as a switch.	[2]
f)	Discuss about the transistor saturation.	[3]
g)	Write down the application of diode Multivibrators.	[2]
h)	How can be hysteresis eliminated in a Schmitt trigger?	[3]
i)	Draw unidirectional sampling gate.	[2]
j)	Compare MOS and CMOS families.	[3]

PART-B **(50 Marks)**

2.a) Explain the operation of RC high pass circuit with ramp input with circuit diagram.

b) An ideal 1μs is fed to an amplifier. Calculate and plot the output waveform under the following conditions: the 3-dB frequency is
i) 10MHz ii) 1MHz iii) 0.1MHz. [5+5]

OR

3.a) Sketch in integrating circuit with a square wave input. Explain how the wave shape obtained.

b) A 10μf capacitor is charged from a 5V source via a 10 KΩ resistance. Calculate the capacitor voltage after 50ms if it is initially charged to -2V. [5+5]

4.a) Explain the operation of a double diode clipper with help of circuit diagram and waveforms.

b) Explain steady state output for a square wave input of a clamping circuit. [5+5]

OR

5.a) Discuss about synchronized clamping in detail.

b) Explain clamping operation with help of circuit diagram and waveforms. [5+5]

6.a) Explain the Transistor breakdown in detail.
b) Explain the effect of temperature on transistor characteristics. [5+5]

OR

7. List and define all the transistor switching times, with a neat diagrams. [10]

8.a) Design Astable Multivibrator and explain its operation with help of circuit diagram and waveforms.
b) Explain the operation of an exponential sweep circuit with help of circuit diagram and waveforms. [5+5]

OR

9.a) Discuss different methods improving linearity.
b) Design collector coupled Monostable Multivibrator and explain its operation with help of circuit diagram and waveforms. [4+6]

10.a) Compare DTL and TTL families.
b) Discuss about RTL logic family in detail, with one example. [4+6]

OR

11.a) Realize AND gate and OR gate using diodes.
b) Explain about Transistor – Transistor logic. Also mention the types of output configuration. [5+5]

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