R16

Code No: 134CC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, April - 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)	Discuss the response of RC high pass circuit to ramp input voltage.	[2]
b)	Draw the low-pass circuit and explain its working.	[3]
c)	Draw the basic circuit diagram of negative peak clamper circuit.	[2]
d)	Explain the working of an emitter coupled clipper.	[3]
e)	List different switching times of a diode.	[2]
f)	Explain how diode acts as a switch.	[3]
g)	What are the commutating capacitors? Why these are used in binary?	[2]
h)	Write a short note on hysteresis.	[3]
i)	Why totem pole is used in DTL.	[2]
j)	How do sampling gates differ from logic gates?	[3]

PART-B

(50 Marks)

2.a) Draw the response of the circuit for step input critically damped and over damped cases for a fixed value of R and C.
b) Explain the working of high-pass RC circuit as a differentiator. [6+4]

OR

3.a) Define the rise time and write the expression of it.
b) Derive an expression for the output of a high-pass circuit excited by a square input. [4+6]

4.a) Explain the operation of two level slicer.
b) What is meant by comparator? Explain the applications of voltage comparators. [5+5]

OR

5.a) State and prove the clamping circuit theorem.
b) Draw the output waveform of a practical clamping circuit when a square wave is given as input. Derive the relation between Δf and Δr in this case. [5+5]

6. List and explain all the switching times of a transistor. [10]

OR

7.a) Design Transistor switch circuit.
b) Explain in detail about the Silicon-controlled-switch circuits. [5+5]

8.a) With the help of neat circuit diagram and waveform ,explain the principle of operation of collector coupled monostable multivibrator.

b) With the help of neat circuit diagram and waveforms, explain the working of a Schmitt trigger. [5+5]

OR

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

b) Draw the circuit diagram and waveforms of a transistor bootstrap time base generator and explain principle of operation. [5+5]

10.a) With help of a neat diagram, explain the working of bidirectional gates using transistors.

b) Draw and explain a diode AND circuit for negative logic and how it works. How an OR circuit acts a buffer circuit? [5+5]

OR

11.a) Compare the performance of various logic families.

b) Explain how to cancel a pedestal in a sampling gate with suitable circuit diagram. [5+5]

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