Regulation R17 *Subject code:1P4DB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech II Year II Semester Supplementary Examinations, September 2023
PULSE AND DIGITAL CIRCUITS
(ECE)

Maximum Marks: 70 Date:15.09.2023 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

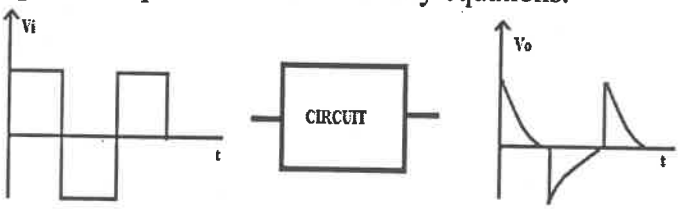
All the following questions carry equal marks (10x2M=20 Marks)

1 Draw the low pass RC circuit and explain its working.
2 Explain condition of RC circuit to work as differentiator.
3 What are the clipping circuits? Give some examples?
4 What are the applications of voltage comparators?
5 How a diode act as a switch?
6 Compare Miller and Bootstrap time-base generators.
7 What are the applications of a Bistable-Multivibrator?
8 Define the terms UTP and LTP of a Schmitt trigger and explain how these are varied?
9 What is pedestal? What are the effects of it in sampling gates?
10 Give some applications of logic gates.

Part-B

Answer All the following questions. (5X10M=50Marks)

11 a) Which linear circuit is required to obtain the output for the given input shown in figure? Explain its operation with necessary equations. 05



b) Derive the expression for rise time of the output of a low pass circuit excited by a step input and obtain relation between rise time and bandwidth. 05

OR

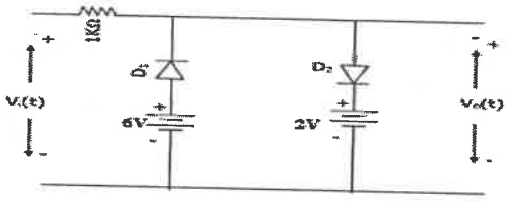
12 Prove that for any periodic input waveform, the average level of the steady state output signal from RC high pass circuit is always zero. 10

13 With the help of neat circuit diagram and waveforms explain the working of positive & negative clamping circuit. 10

OR

14 a) With the help of neat circuit diagram, explain the working of two level diode clipper. 05

b) Determine V_o for the network shown in figure, for he given 16V peak to peak sinusoidal input and also sketch the transfer characteristics. 05



15 a) Write a short notes on diode switching times. 04

b) With the help of neat diagram, explain the working of two diode sampling gate. 06

OR

16 a) With the help of a neat circuit diagram, explain the working of a transistor Miller time base generator. 07

b) Explain the methods of Linearity improvement. 03

17 What is Monostable Multivibrator? Explain the principle of operation of a monostable multivibrator with the help of neat circuit diagram. 10

OR

18 With the help of a neat circuit diagram explain the working of an AstableMultivibrator. 10

19 Describe the working of a 4-Diode sampling gate with necessary diagram & equations. 10

OR

20 Draw the circuit diagram of a positive 3 i/p NAND gate in DTL logic and explain its working. 10