



Regulation R17

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code:1P4DB

B.Tech II Year II Semester Supplementary Examinations, July 2022 PULSE AND DIGITAL CIRCUITS

(ECE)

Maximum Marks: 70

Date:22.07.2022 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)

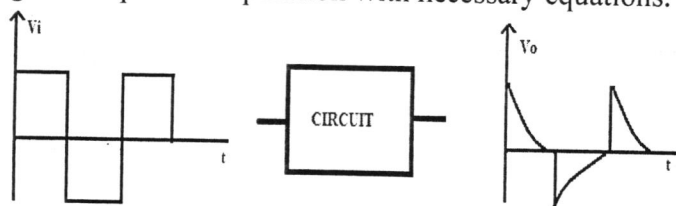
- 1 Draw the low pass RC circuit and explain its working.
- 2 Explain condition of RC circuit to work as differentiator.
- 3 What are the clipping circuits? Give some examples?
- 4 What are the applications of voltage comparators?
- 5 Explain how a diode act as a switch?
- 6 Compare Miller and Bootstrap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

(10M X 5=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

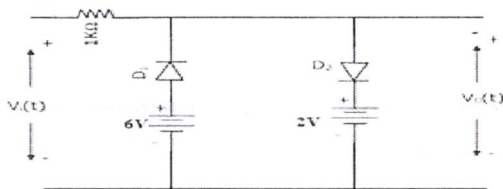
- 12 a) Prove that for any periodic input waveform, the average level of the steady state output signal from RC high pass circuit is always zero. 06

b) A 1 KHz symmetrical square wave of $\pm 10V$ is applied to an RC circuit having 1msec time constant. Calculate and plot the output of RC High pass circuit and RC Low pass circuit. 04

- 13 a) With the help of neat circuit diagram and waveforms explain the working of positive & negative clamping circuit. 06
 b) State and prove clamping circuit theorem. 04

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 the given 16V peak to peak sinusoidal input and also sketch the transfer characteristics. 05



- 15 Write a short notes on diode switching times. 10

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 Astable Multivibrator. 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