



R17 Regulation

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 2024

PULSE AND DIGITAL CIRCUITS
(ECE)

Maximum Marks: 70

Date: 20.07.2024 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

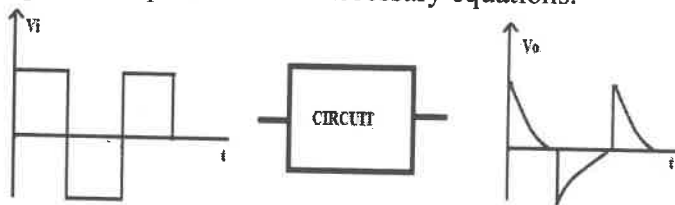
All the following questions carry equal marks (10x2M=20 Marks)

- 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. (10M X 5=50Marks)

- 11 Which linear circuit is required to obtain the output for the given input shown in figure? Explain its operation with necessary equations. 10



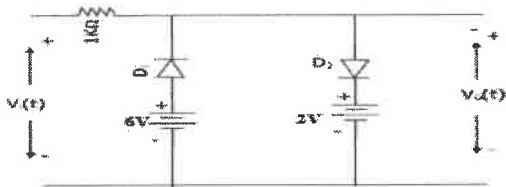
OR

- 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 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 a) With the help of a neat circuit diagram explain the working of an Astable Multivibrator. 06
 b) Draw and explain the base and collector waveforms of an Astable Multivibrator. 04
 19 a) Describe the working of a 4-Diode sampling gate with necessary diagram & equations. 06
 b) Explain the working of bi-directional gate using transistors. 04

OR

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