R20 Regulation *Subject code:3P4DC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, June 2026

PULSE AND DIGITAL CIRCUITS

(ECE)

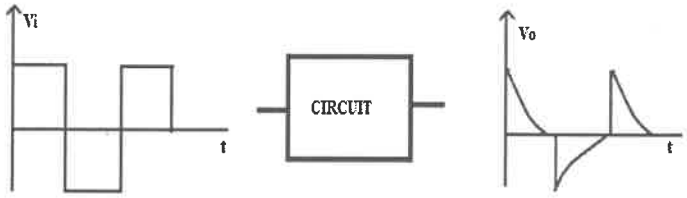
Maximum Marks: 70 Date: 12.06.2026 Duration: 3 hours

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)		Marks	CO	BTL
1	What is rise time and write the expression for it?	2M	1	L1
2	Write the condition of RC circuit to work as differentiator.	2M	1	L1
3	What are the clipping circuits? Give some examples?	2M	2	L1
4	What are the applications of voltage comparators?	2M	2	L1
5	How a diode act as a switch?	2M	3	L1
6	Compare Miller and Bootstrap time-base generators.	2M	3	L1
7	What are the applications of a Bistable-Multivibrator?	2M	4	L1
8	Define the terms UTP and LTP of a Schmitt trigger and explain how these are varied?	2M	4	L1
9	What is pedestal? What are the effects of it in sampling gates?	2M	5	L1
10	Define Positive and Negative logic systems.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Which linear circuit is required to obtain the output for the given input shown in figure? Explain its operation with necessary equations. 	10M	1	L2
	OR			
12	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.	10M	1	L2
13	With the help of neat circuit diagram and waveforms explain the working of positive & negative clamping circuit.	10M	2	L2
	OR			

14	With the help of neat circuit diagram, explain the working of two level diode clipper.	10M	2	L2
15	A) Write a short note on diode switching times. With neat diagram. B) Explain the methods of Linearity improvement.	5M 5M	3	L2
	OR			
16	With the help of a neat circuit diagram, explain the working of a transistor Miller time base generator.	10M	3	L2
17	Explain the operation of fixed bias binary.	10M	4	L2
	OR			
18	Explain Astable Multivibrator with neat circuit diagram and derive an expression for the frequency of oscillations.	10M	4	L2
19	Draw a TTL 2-i/p NAND gate and explain its operation.	10M	5	L2
	OR			
20	a) What are application of sampling gates? b) Explain in detail about chopper amplifier.	5M 5M	5	L2