R18 Regulation *Subject code:2P3DE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, June 2026

PULSE AND DIGITAL CIRCUITS
(ECE)

Maximum Marks: 70 Date: 20.06.2026 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	Write an expression for the output of a high-pass circuit excited by a ramp input.	2M	1	L1
2	What is Attenuators and explain its application?	2M	1	L1
3	What is meant by clipping in wave shaping?	2M	2	L1
4	What do you mean by double ended clipper?	2M	2	L1
5	Draw and explain how transistor used as a switch.	2M	3	L1
6	Write the difference between current time base generator and voltage time base generators.	2M	3	L1
7	Define Multivibrator . How many types of Multivibrators are there.	2M	4	L1
8	Define UTP and LTP of a Schmitt trigger.	2M	4	L1
9	Explain the principle of 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	Derive the expression for percentage tilt for a square wave output of RC high pass circuit.	10M	1	L2
	OR			
12	Derive the expression for rise time of integrating circuit and prove that it is proportional to time constant and inversely proportional to upper 3 dB frequency.	10M	1	L2
13	Draw the circuit diagram of a DC restorer circuit with and without reference voltage and explain its operation for a sinusoidal input signal.	10M	2	L2
	OR			
14	With help of a neat circuit diagram explain the working of a two – level diode clipper.	10M	2	L2
15	a) Explain the transistor switching times. b) Draw and Explain the piece-wise linear characteristics of a diode.	5M 5M	3	L2

	OR			
16	Explain with neat diagram the following methods of linearizing a voltage sweep. a) Miller Sweep b) Bootstrap weep.	5M 5M	3	L2
17	Draw the circuit of a self-biased transistor binary and develop the design and steps of analysis.	10M	4	L2
	OR			
18	Derive an expression for the frequency of oscillations of an Astable Multivibrator.	10M	4	L2
19	Draw the circuit diagram of a unidirectional sampling gate which delivers an output only at the coincidence of a number of control voltages and explain its working.	10M	5	L2
	OR			
20	Draw a 3-input AND gate using diodes and transistors & explain it with truth table.	10M	5	L2