R20 Regulation *Subject code:3P4DC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, December 2025

PULSE AND DIGITAL CIRCUITS

(ECE)

Maximum Marks: 70 Date: 20.12.2025 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	Define storage time and transition time of a diode.	2M	3	L1
6	Define the terms displacement error and transmission error.	2M	3	L1
7	Write types of Multivibrators.	2M	4	L1
8	Define UTP and LTP of a Schmitt trigger.	2M	4	L1
9	Write 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	Explain the operation of RLC series and parallel circuits.	10M	1	L2
13	Classify different types of clipper circuits. Draw their circuits and explain their operation with transfer characteristics.	10M	2	L2
	OR			
14	a) State and prove clamping circuit theorem. b) Explain negative peak clipper with and without reference voltage.	5M 5M	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	What is Monostable Multivibrator? Explain the principle of operation of a monostable multivibrator with the help of neat circuit diagram.	10M	4	L2
	OR			
18	A) Derive an expression for the frequency of oscillations of an Astable Multivibrator. With neat circuit diagram. B) Draw the circuit of a self-biased transistor binary.	5M 5M	4	L2
19	With the help of neat circuit diagram and truth table explain (i) RTL OR gate (ii) RTL AND gate.	 5M 5M	5	L2
	OR			
20	a) What are application of sampling gates? b) Explain in detail about chopper amplifier?	5M 5M	5	L2

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