



R18 Regulation

Subject code:2P3DE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, December 2025

PULSE AND DIGITAL CIRCUITS (ECE)

Maximum Marks: 70

Date: 24.12.2025

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	Draw the low pass RC circuit.	2M	1	L1
2	Explain condition of RC circuit to work as differentiator.	2M	1	L1
3	What are the clipping circuits?	2M	2	L1
4	What is comparator?	2M	2	L1
5	Define storage time and transition time of a diode.	2M	3	L1
6	Define the terms slope error and transmission error.	2M	3	L1
7	What are the types of triggering?	2M	4	L1
8	Define the resolving time and resolution time.	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	What is an attenuator? How can an uncompensated attenuator be modified as a compensated attenuator. Give the comparison between perfect compensation, under compensation and over compensation.	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	Classify different types of clipper circuits. Draw their circuits and explain their operation and also transfer characteristics.	10M	2	L2
OR				
14	a) What do you mean by biased clamping? b) A 100V peak square wave with an average value of 0V and a period of 20ms is to be negatively clamped at 25V. Draw the input and output waveforms and necessary circuit diagram.	5M 5M	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	a) What is hysteresis and explain the different methods for avoiding hysteresis in Schmitt trigger in detail. b) Draw the circuit diagram of Emitter-coupled monostable multivibrator and explain its operation in detail.	5M 5M	4	L2
OR				
18	a) Derive an expression for the frequency of oscillations of an Astable Multivibrator. 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 a) RTL OR gate b) 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