



R22 Regulation

Subject code:4E4DC

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: 60

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 10 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 (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Give the effect of time constant of a RC circuit on differentiated wave.	1M	CO1	BL1
b)	Specify the need of wave shaping circuits.	1M	CO1	BL1
c)	What is a Transistor clipper?	1M	CO2	BL1
d)	What do you mean by negative clamping circuits?	1M	CO2	BL1
e)	What is diode reverse recovery time (t_{rr})?	1M	CO3	BL1
f)	List the applications of time base generators.	1M	CO3	BL1
g)	Why do we call Astable Multivibrator as free running?	1M	CO4	BL2
h)	What do you mean by monostable multivibrator?	1M	CO4	BL1
i)	What is the current hogging problem?	1M	CO5	BL1
j)	List the types of TTL logic.	1M	CO5	BL1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Prove that a low pass circuit acts as an integrator.	5M	CO1	BL4
	b) Design high pass RC circuit for sinusoidal input.	5M		
OR				
3	a) Show that a high pass circuit with a small time constant acts as differentiator.	5M	CO1	BL3
	b) Describe about attenuators and derive the condition for perfect compensation of an attenuator.	5M		
4	a) Discuss the function of series diode and shunt diode clipping circuits? How can the clipping level shifted to reference voltage? Explain?	5M	CO2	BL4
	b) Discuss the applications of voltage comparator.	5M		
OR				
5	a) With the help of a neat circuit diagram explain the working of a two-level diode clipper.	5M	CO2	BL3
	b) Discuss the effect of diode characteristics on clamping circuits.	5M		

6	a) Elaborate about piece-wise linear approximation for semiconductor diode characteristics.	5M	CO3	BL3
	b) Explain the working of transistor as a switch and draw the output characteristics.	5M		
OR				
7	With the help of neat circuit diagram and waveforms explain transistor miller time base generator.	10M	CO3	BL2
8	Describe with neat circuit diagram and waveform of collector coupled Astable Multivibrator.	10M	CO4	BL2
OR				
9	Discuss about the Schmitt trigger circuit with neat diagram.	10M	CO4	BL2
10	Explain briefly the operation of TTL NAND gate in tristate output configurations.	10M	CO5	BL2
OR				
11	a) Give a brief review about applications of the sampling gate.	5M	CO5	BL4
	b) Explain how sampling gate is used in chopping amplifiers.	5M		