



R22 Regulation

Subject code:4E4DD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech IV Semester Supplementary Examinations, December 2025

LINEAR AND DIGITAL IC APPLICATIONS

(ECE)

Maximum Marks: 60

Date:23.12.2025

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)	Define unity gain band width of an op-amp.	1M	CO1	BL1
b)	List the features of voltage regulator.	1M	CO1	BL1
c)	Mention few advantages of filters.	1M	CO2	BL2
d)	Draw the functional diagram of IC 555 timer.	1M	CO2	BL2
e)	What are the three stages through which PLL operates?	1M	CO3	BL1
f)	Give the drawbacks of weighted resistor DAC.	1M	CO3	BL1
g)	Write the classification of Integrated circuits.	1M	CO4	BL1
h)	Write about Gray to binary convertor.	1M	CO4	BL1
i)	What is shift register?	1M	CO5	BL1
j)	How many memory cells will be there in 32-kbit ROM array?	1M	CO5	BL2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	Explain the operation of Practical Integrator and plot its waveforms for different inputs .	10M	CO1	BL3
OR				
3	With neat circuit diagram explain the working principle of IC 723 voltage regulator.	10M	CO1	BL3
4	Draw and explain the frequency response of all filters based on frequency range.	10M	CO2	BL2
OR				
5	Explain the operation and derive the expression of time delay of Mono stable multi vibrator using 555 timers.	10M	CO2	BL3
6	Draw and explain the block diagram of PLL IC 565 and derive its transfer function.	10M	CO3	BL3
OR				

7	a) An 8 bit DAC produces an output voltage '0' V corresponds to an input sequence '00000000'. If the DAC is connected for a basic increment of 10mv. What is the output when input is '11111111'? b) Explain the working of R-2R ladder DAC with neat circuit diagram.	3M 7M	CO3	BL4
8	With suitable example, explain how CMOS logic is driven by TTL logic.	10M	CO4	BL4
OR				
9	a) Explain the decimal-to-BCD priority encoder b) Explain BCD-to-Binary conversion.	5M 5M	CO4	BL2
10	Discuss the Edge triggered D-Flip-Flop using Transmission gates and explain its operation.	10M	CO5	BL2
OR				
11	Draw the DRAM cell and explain its Read and Write operation and compare DRAM cell with SRAM cell.	10M	CO5	BL3