R20 Regulation *Subject code:3E8DA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Supplementary Examinations, May 2026

LOW POWER VLSI DESIGN

(ECE)

Maximum Marks: 70 Date: 04.05.2026 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 about sources of leakage power with neat diagram.	2M	1	L1
2	Write about Drain Induced Barrier Lowering of NMOS transistor.	2M	1	L1
.3	Define parallel processing.	2M	2	L1
4	What are the measures for mask level?	2M	2	L1
5	Write the drawbacks of carry look ahead adder.	2M	3	L1
6	Write the drawbacks of ripple carry adder.	2M	3	L1
7	List out the types of multiplier architectures.	2M	4	L1
8	Define binary array multiplier	2M	4	L1
9	Draw the self-refresh circuit.	2M	5	L1
10	What are the specification of ROM?	2M	5	L1

Part-B

	Answer All the following questions. (5X10M=50Marks)	Marks	CO	BTL
11	Explain about switching power dissipation and short circuit power dissipation.	10M	1	L2
	OR			
12	Explain about short channel effects of a transistor.	10M	1	L2
13	With a neat sketch, explain a multiple threshold CMOS inverter circuit.	10M	2	L2
	OR			
14	With a neat sketch, explain architectural level approaches?	10M	2	L2
15	Design a carry-out circuit of 4 bit carry look ahead adder.	10M	3	L2
	OR			
16	Explain the basic theory, operation & performance evaluation of carry look-ahead adders.	10M	3	L2
17	What are the building blocks are needed for binary array multiplier and explain?	10M	4	L2
	OR			
18	Construct Braun Multiplier and explain its operation.	10M	4	L2

19	With a neat diagram, explain the block diagram of DRAM architecture.	10M	5	L2
	OR			
20	Discuss low power SRAM technologies with neat diagrams.	10M	5	L2