



R20 Regulation

Subject code: 3E8DA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular Examinations, April 2024

LOW POWER VLSI DESIGN

(Electronics and Communication Engineering)

(Professional Elective)

Maximum Marks: 70

Date: 22.04.2024 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 which carries 10M.
 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)		CO	Bloom Tx
1	Write the need for low power VLSI.	1	L1
2	List out the sources of power dissipation in VLSI circuits.	1	L2
3	List out the advantages of voltage scaling	2	L2
4	Write about pipelining processing.	2	L1
5	Realize CMOS logic for 1 bit full adder.	3	L2
6	Write the drawbacks of ripple carry adder.	3	L1
7	List out the types of multiplier architectures.	4	L2
8	Define binary array multiplier	4	L2
9	Draw the self-refresh circuit.	5	L3
10	What are the specification of ROM?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)			
11	What is threshold voltage? Derive an expression for threshold voltage for MOSFET. [10M]	1	L4
OR			
12	Explain about short channel effects of a transistor. [10M]	1	L3
13	With a neat sketch, explain a multiple threshold CMOS inverter circuit. [10M]	2	L4
OR			
14	With a neat sketch, explain i) VTCMOS [5M] ii) MTCMOS [5M]	2	L4
15	Design a carry-out circuit of 4 bit carry look ahead adder. [10M]	3	L3
OR			
16	Discuss in detail of any two types of low voltage low power logic styles. [10M]	3	L4
17	Construct Braun Multiplier and explain its operation. [10M]	4	L4

	OR		
18	Write down the algorithm of Baugh-Wooley multiplier and explain it. [10M]	4	L4
19	Design 8X3 ROM and explain its operation. [10M]	5	L4
	OR		
20	Explain the working 1-T DRAM with neat sketch. [10M]	5	L3