Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Diploma Engineering, Mid semester Examination

Semester: **Date: 19/01/2023**

Subject Code: 03608353 **Time: (1hr: 30min)**

Subject Name: VLSI **Total Marks: 40**

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

Q.1	Answer any six out of Ten. (2 Marks Each)	(12)	CO/PO Name	Blooms Taxonomy Words
	1. What are Four Generations of Integration Circuits?		CO2	Understand
	2. Give the Advantage of Integration Circuits.		CO1	Knowledge
	3. What is Accumulation region in MOSFET?		CO2	Understand
	4. What is Depletion region in MOSFET?		CO2	Understand
	5. What is Inverse region in MOSFET?		CO2	Understand
	6. What is Full form of MOSFET and IGFET?		CO1	Knowledge
	7. What is MOSFET Scaling?		CO2	Understand
	8. What is Modularity?		CO1	Knowledge
	9. What is Locality?		CO2	Understand
	10. What is Regularity?		CO1	Knowledge
Q.2	A) Explain VLSI design flow using Y- chart.	(03)	CO3	Apply
	OR			
	A) Explain VLSI design flow using Flow chart.	(03)	CO3	Apply
	B**)** Explain VLSI Design style for FPGA.	(03)	CO3	Apply
	OR			
	B) Explain VLSI Design style for Gate Array.	(03)	CO4	Analyze
	C) Explain VLSI Design style for Standard-cell based.	(04)	CO3	Apply
	OR			
	C) Write short note on design quality	(04)	CO2	Understand
	D) Difference between Full custom and semicustom.	(04)	CO4	Analyze
Q.3	A) Explain P Channel Enhancement MOSFET.	(03)	CO4	Analyze
	OR			
	A) Explain N Channel Enhancement MOSFET.	(03)	CO3	Apply
	B) Explain P Channel Depletion MOSFET.	(03)	CO3	Apply
	OR			
	B) Explain N Channel Depletion MOSFET.	(03)	CO2	Understand
	C) Explain Constant Field Scaling	(04)	CO2	Understand
	OR			
	C) Explain Constant Voltage Scaling	(04)	CO3	Apply
	D) Write short note on MOSFET Capacitance.	(04)	CO1	Knowledge

ગુજરાતી

પ્રશ્ન.૧	દસમાંથી કોઈપણ છ જવાબ આપો . (દરેક માટે ૨ ગુણ)	**(૧૮)**
	૧. □□□□□□ □□□□□□□□ □□□ □□□□□ □□□ □□?	
	૨. □□□□□□ □□□□□□□□ □□□□□ □□□.	
	૩. MOSFET □□□ □□□□ □□□□□□□ □□□ □□?	
	૪. MOSFET □□□ □□□□□□ □□□□□□□ □□□ □□?	
	૫. MOSFET □□□ □□□□□□ □□□□□□ □□□ □□?	
	૬. MOSFET □□□ IGFET □□□ □□□□□ □□□□□□ □□□ □□?	
	૭. MOSFET □□□□□□□□ □□□ □□?	
	૮. □□□□□□□□□□□□ □□□ □□?	
	૯. □□□□□□□□□ □□□ □□?	
	૧૦. □□□□□□□□ □□□ □□**?**	
પ્રશ્ન.૨	એ) Y- □□□□□□□ □□□□□ □□□□□ VLSI □□□□□□ □□□□ □□□□□□.	**(૦૩)**
	અથવા	
	એ) □□□□ □□□□□□□ □□□□□ □□□□□ VLSI □□□□□□ □□□□ □□□□□□.	**(૦૩)**
	બી) FPGA □□□□ VLSI □□□□□□ □□□□ □□□□□□.	**(૦૩)**
	અથવા	
	બી) □□□ □□□ □□□□ VLSI □□□□□□ □□□□ □□□□□□.	**(૦૩)**
	સી) □□□□□□□□□□ □□□ □□□□□□ VLSI □□□□□□ □□□□ □□□□□□.	**(૦૪)**
	અથવા	
	સી) □□□□□□ □□□□□□□□ □□ □□□□□ □□□□ □□□	**(૦૪)**
	ડી) □□□□□□□ □□□□□ □□□ □□□□□□□□□ □□□□□□□ □□□□□.	**(૦૪)**
પ્રશ્ન.૩	એ) P □□□□ □□□□□□□□□□□□□ MOSFET □□□□□□.	**(૦૩)**
	અથવા	
	એ) N □□□□ □□□□□□□□□□□□□ MOSFET □□□□□□.	**(૦૩)**
	બી) P □□□□ □□□□□□□□ MOSFET □□□□□□.	**(૦૩)**
	અથવા	
	બી) N □□□□ □□□□□□□□ MOSFET □□□□□□.	**(૦૩)**
	સી) □□□□□□□□□□ □□□□□ □□□□□□□□ □□□□□□	**(૦૪)**
	અથવા	
	સી) □□□□□□□□□□ □□□□□□□ □□□□□□□□ □□□□□□	**(૦૪)**
	ડી) MOSFET □□□□□□□□□□ □□ □□□□□ □□□□ □□□.	**(૦૪)**