Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2163905 **Date: 08/05/2017**

Subject Name: Microelectronics and VLSI

Time: 10:30 AM to 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1		**Short Questions**	**14**
	1	What is p-n junction diode?	
	2	Give full form of BJT.	
	3	What is Moore's law?	
	4	Explain principle of LED in short.	
	5	What is device scaling?	
	6	Give full form of MOSFET.	
	7	Write the types of BJT.	
	8	What is CMOS?	
	9	Write types of MOSFET.	
	10	What are the types of logic gate?	
	11	Give full form of MEMS.	
	12	Explain principle of photovoltaic cell in short.	
	13	Write the types of RAM.	
	14	Explain micro fluidic device in short.	
Q.2	**(a)**	Draw the schematic structure of MOSFET.	**03**
	(b)	Write applications of LED.	**04**
	(c)	Explain photovoltaic cell.	**07**
		OR	
	(c)	Describe Moore's law.	**07**
Q.3	**(a)**	Draw the symbol of AND, NAND and OR gate.	**03**
	(b)	Give the difference between combinational and sequential circuit.	**04**
	(c)	Write a short note on binary number system.	**07**
		OR	
Q.3	**(a)**	Explain synchronous and asynchronous counters.	**03**
	(b)	Describe S-R flip flop.	**04**
	(c)	Write a short note on RAM.	**07**
Q.4	**(a)**	What is J-K flip flop?	**03**
	(b)	Explain working principle of MOS transistor.	**04**
	(c)	Write a short note on MEMS.	**07**
		OR	
Q.4	**(a)**	Give name of three micro fabrication techniques.	**03**
	(b)	Describe IC classification in short.	**04**
	(c)	Write applications of micro fluidic device.	**07**
Q.5	**(a)**	Describe combinational circuits.	**03**
	(b)	Draw schematic structure of NMOS transistor.	**04**
	(c)	Explain IC fabrication.	**07**

OR

Q.5	**(a)**	Describe sequential circuits.	**03**
	(b)	Draw schematic structure of PMOS transistor.	**04**
	(c)	Explain CMOS transistor.	**07**

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