GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2163905   **Date:21/05/2019**

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	**(a)**	Write down name of various techniques for microelectronics and VLSI in the vicinity of Nanotechnology	**03**
	(b)	Describe: Photonic devices	**04**
	(c)	Write a short note on MOSFET	**07**
Q.2	**(a)**	What do mean by Moore's law?	**03**
	(b)	Describe: semiconductor random access memory	**04**
	(c)	Write a short note on Binary number systems	**07**
		OR	
	(c)	Write a short note on J-K Flip-flop and state its application	**07**
Q.3	**(a)**	Give classification of IC.	**03**
	(b)	State various issues associated with VLSI design	**04**
	(c)	Write a short note on fabrication of IC.	**07**
		OR	
Q.3	**(a)**	What are uses of simulation methods in the field of electronics?	**03**
	(b)	Differentiate : Synchronous and Asynchronous counters	**04**
	(c)	Write a short note on NMOS transistor	**07**
Q.4	**(a)**	Write down name of various materials used in the synthesis of LED.	**03**
	(b)	Explain : Device scaling	**04**
	(c)	Write a short note digital IC.	**07**
		OR	
Q.4	**(a)**	What do you mean by Optocoupler device	**03**
	(b)	Describe: Micro fluidics device and its applications.	**04**
	(c)	Write a short note on Photovoltaic cell.	**07**
Q.5	**(a)**	Draw the schematic diagram of BJT and state its application.	**03**
	(b)	Describe : MEMS	**04**
	(c)	Explain CMOS transistor with necessary diagram.	**07**
		OR	
Q.5	**(a)**	What do you mean by Hexadecimal number systems?	**03**
	(b)	Convert binary number $(10110100)_2$ into its equivalent octal, hexadecimal and decimal number	**04**
	(c)	Describe S-R flip flop and state its applications	**07**

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