GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION - SUMMER 2016 Subject Code: 2163905 Date:17/05/2016 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. 0.1 (a) Describe PN junction diode. 07 Describe PNP and NPN transistors. **(b)** 07

Describe MOSFET. **Q.2** (a) 07 Describe principle and working mechanism of LED. 07 OR Write applications of LED. **(b)** 07 Write applications of PN junction diode and MOSFET. **Q.3** 07 (a) Describe principle and operation of photovoltaic cell. **(b) 07** 07 0.3 (a) Write applications of photovoltaic cell. Write Moore's law and explain it. 07 **(b)** Design the circuit diagram for binary number systems for 0-9. 07 0.4 (a) Explain the semiconductor random access memory (RAM). **(b) 07** OR 07 0.4 Describe any one micro fabrication technique. (a) Write applications of MEMS. 07 **(b)** Write applications of Microfulidic devices. 07 **Q.5** (a) **(b)** Describe the construction of NMOS and PMOS with schematic. **07** OR Explain working principle and mechanism of CMOS with schematic. **Q.5** 07 (a) Describe various types of ICs. **07 (b)**
