GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014

Subject Code: 162402 Date: 21-05-2014 **Subject Name: Microprocessor for Power Electronics** Time: 10:30 am - 01:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessarv. 3. Figures to the right indicate full marks. **Q.1** (a) Draw and explain architecture of 8051 microcontroller with internal RAM, 07 ROM & SFR organization. (b) Explain various addressing modes of 8051 microcontroller. 07 **Q.2** (a) Explain 8051 counter in detail. 07 What is the difference between interrupt and polling ? Explain timer 07 **(b)** interrupt in detail. OR (b) Write an assembly language program to continuously blink alternate LEDs 07 connected to PORT 1. 0.3 (a) Discuss how these type of programmable chips are useful for power 07 electronics circuits. (b) Write an assembly language program to continuously check data at Port 1. 07 Set P2.0 it the data is odd and clear P2.0 if the data is even. OR (a) Explain the bits of PSW register & discuss various jump instructions. Q.3 07 Explain serial data transfer for 8051 microcontroller with SCON & SBUF **(b)** 07 registers. **Q.4** Give schematic diagram and flow chart (program logic) for Analog to 07 (a) Digital Converter interface with 8051 microcontroller. (b) Explain the execution of 'JC label' instruction with respect to stack 07 operations. OR (a) Write a short note on assembler directives and data types of 8051 **O.4** 07 microcontroller. (b) Explain RS-232 communication protocol in detail. 07 07 Q.5 (a) Give bit identification of IE, IP and PSW registers. Write an assembly language program to calculate the sum of 10 numbers **(b)** 07 stored at memory location 40H onwards and store the answer in the memory location 50H.

OR

Q.5 (a) Explain MUL & DIV instructions with example.
(b) State why delays are required? Explain means to provide software delay.
07
