

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 necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Draw and explain architecture of 8051 microcontroller with internal RAM, ROM & SFR organization. **07**

(b) Explain various addressing modes of 8051 microcontroller. **07**

Q.2 (a) Explain 8051 counter in detail. **07**

(b) What is the difference between interrupt and polling ? Explain timer interrupt in detail. **07**

OR

(b) Write an assembly language program to continuously blink alternate LEDs connected to PORT 1. **07**

Q.3 (a) Discuss how these type of programmable chips are useful for power electronics circuits. **07**

(b) Write an assembly language program to continuously check data at Port 1. Set P2.0 if the data is odd and clear P2.0 if the data is even. **07**

OR

Q.3 (a) Explain the bits of PSW register & discuss various jump instructions. **07**

(b) Explain serial data transfer for 8051 microcontroller with SCON & SBUF registers. **07**

Q.4 (a) Give schematic diagram and flow chart (program logic) for Analog to Digital Converter interface with 8051 microcontroller. **07**

(b) Explain the execution of 'JC label' instruction with respect to stack operations. **07**

OR

Q.4 (a) Write a short note on assembler directives and data types of 8051 microcontroller. **07**

(b) Explain RS-232 communication protocol in detail. **07**

Q.5 (a) Give bit identification of IE, IP and PSW registers. **07**

(b) Write an assembly language program to calculate the sum of 10 numbers stored at memory location 40H onwards and store the answer in the memory location 50H. **07**

OR

Q.5 (a) Explain MUL & DIV instructions with example. **07**

(b) State why delays are required? Explain means to provide software delay. **07**
