

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – WINTER • 2014****Subject Code: 162402****Date: 28-11-2014****Subject Name: Microprocessor for Power Electronics****Time: 02:30 pm - 05:00 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 only, the pin diagram and block diagram of 8051. List the difference between microcontroller and microprocessor. **07**
- (b) List and explain I/O ports of 8051 and their functions. **07**
- Q.2** (a) Explain register A, B, R0-R7 registers in 8051. Write a program to generate a square wave on pin P1.2. **07**
- (b) Explain the logic & compare instructions in 8051 and write a program to add two numbers and store the result in register R3. **07**
- OR**
- (b) Explain the arithmetic instructions in 8051 and write a program to add two numbers and store the result in register R3. **07**
- Q.3** (a) Write a note on PSW register. **07**
- (b) Write an Assembly Language Program to perform the following steps: Load register R1 with 30H, R2 with AAH, R6 with 0AH, R7 with 55H. Now copy the contents of R7 to A. Complement the Accumulator and store the result in R5. **07**
- OR**
- Q.3** (a) Write an Assembly Language Program to toggle the bits of port 2 with a delay depending on the value in register R0. **07**
- (b) Write a note on TMOD and TCON register. **07**
- Q.4** (a) Explain the advantages of writing a program in C over ALP. Explain the different data types in 8051 C. **07**
- (b) Explain the interfacing of 8051 with external ROM. **07**
- OR**
- Q.4** (a) Give the merits of using C programming over ALP and explain the different logic operations in 8051 C. **07**
- (b) List the steps to program the 8051 to 1) transmit and 2) receive the data serially. **07**
- Q.5** (a) What is interrupt? Explain different interrupts in 8051. **07**
- (b) Draw and explain a flow chart to detect and identify key activation in 8051. **07**
- OR**
- Q.5** (a) Explain DB, ORG, EQU, END assembler directives with an example. **07**
- (b) What is a subroutine? Explain its use in 8051 with a suitable example. **07**
