

GUJARAT TECHNOLOGICAL UNIVERSITY**B E Sem-VI Examination May 2011****Subject code: 160903****Subject Name: Microcontroller****Date: 19/05/2011****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 the block diagram of 8051. **10**
 (b) Give bit format of PSW in 8051. Explain bit significance of each bit. **04**
- Q.2** (a) Compare microprocessor with microcontroller. **07**
 (b) Discuss bit pattern and significance of each bit of TCON and TMOD registers of 8051. **07**
- OR**
- (b) With neat diagram, Explain how 8K of EPROM and 16K of RAM can be connected to Microcontroller 8051. **07**
- Q.3** (a) Explain the addressing modes of 8051 with the help of examples. **07**
 (b) What is bit level instruction? Explain all bit level logical instructions in detail. **07**
- OR**
- Q.3** (a) Write the program using assembly language program / embedded C to put data in Memory Locations 40H to 44H and add them (stored in Memory Locations 40H to 44H). **07**
 (b) Explain editor, assembler, compiler and linker. **07**
- Q.4** (a) Explain the following instructions of 8051 **06**
 (i) PUSH (ii) POP (iii) DJNZ
 (b) What is jump range? Explain short absolute, long absolute and relative jump using appropriate instruction. **04**
 (c) Write 8051 C program to toggle MSB bit of port 1. **04**
- OR**
- Q.4** (a) With the neat block diagram, explain the interfacing of 7 segment LED display **07**
 (b) What is interrupt? Explain various SFRs required with interrupts of 8051 in detail. **07**
- Q.5** (a) What is PWM? Explain how 8051 can be used to control speed of D. C. motor using this technique. **07**
 (b) Give a complete scheme to interface in 8 bit ADC to 8051 microcontroller. **07**
- OR**
- Q.5** (a) Explain port structure and operation of ports of 8051. **07**
 (b) Explain SCON and PCON special function registers of 8051. **07**
