

GUJARAT TECHNOLOGICAL UNIVERSITY**DIPLOMA ENGG.- VIth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 362001/2362001****Date: 26/05/2012****Subject Name: Microcontrollers****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.
4. English version is considered to be Authentic

- Q.1** (a) Draw and explain the general block diagram of Microcontroller-8051. **07**
- (b) Describe the function of Microcontroller-8051 instruction. **07**
- 1) MOV A,@R1
 - 2) ADD A,35H
 - 3) PUSH R7
 - 4) XCH A,R1
 - 5) CJNE A,#data,target
 - 6) DEC @R0
 - 7) DA A
- Q.2** (a) Explain the function of each pin of port 3. **07**
- (b) Explain the function of each bit of special function register PSW. **07**
- OR**
- (b) (i) What is the function of EA pin? **03**
- (ii) Explain the Microcontroller-8051 oscillator and clock. **04**
- Q.3** (a) (i) Explain Microcontroller is a “true computer on chip”. **02**
- (ii) In the ADD instruction ,when is CY raised? **02**
- (iii) Write the difference between RAM and ROM. **03**
- (b) Draw the diagram of external data RAM interfacing with Microcontroller-8051. **07**
- OR**
- Q.3** (a) Explain interrupts in Microcontroller-8051. **07**
- (b) Write a program to transfer the message “GTU” serially at 9600 baud rate. **07**
- Q.4** (a) (i) Load R7 by data from external memory location A397H **03**
- (ii) Explain the instruction MOVC and MOVX. **04**
- (b) Explain the function of each bit of special function register TMOD. **07**
- OR**
- Q.4** (a) (i) Write a program to multiply data 10H and 25H and store result in R1. **03**
- (ii) Write a program to separate the nibbles of given data byte at internal memory location 30H. Store lower nibble at 31H and higher nibble at 32H. **04**
- (b) Explain the function of each bit of special function register SCON. **07**

Q.5

- (a) Explain interfacing of LCD display with Microcontroller-8051 with interfacing diagram and program. **07**
- (b) Assume that XTAL=11.0592MHz. Write a program to generate a square wave of 2KHz frequency on pin P1.5 using mode 1. **07**

OR

Q.5

- (a) Explain interfacing of 8 bit ADC with Microcontroller-8051 with interfacing diagram and program. **07**
- (b) Write a program to transfer a block of 16 data bytes available at internal memory location starting with address 20H to the new area starting with address 40H in reverse order. **07**
