

GUJARAT TECHNOLOGICAL UNIVERSITY**PDDC - SEMESTER – III • EXAMINATION – WINTER 2012****Subject code: X 31103****Date: 31/12/2012****Subject Name: Microcontroller and Interfacing****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) Explain different directives of 8051 Microcontroller. **07**
(b) Draw and explain interfacing of external 32K EPROM and 16K RAM with 8051 Microcontroller. **07**

- Q.2** (a) Explain selection criteria of Microcontroller for an application. **07**
(b) Explain SCON and PCON SFR for 8051 Microcontroller. **07**

OR

- (b) Explain different modes of Timers for 8051 Microcontroller. **07**

- Q.3** (a) Draw internal circuit diagram of all ports of 8051 Microcontroller and explain in short. **07**
(b) Explain following instructions **07**
[1] SWAP A [2] DIV AB [3] MOV 85h, @ R₀ [4] RR A
[5] DJNZ R₀, radd [6] XCHD A, @R₁ [7] MOVC A, @A+DPTR

OR

- Q.3** (a) Write a program to perform the following. **07**
1. Keep monitoring P1.2 until it becomes high.
2. When P1.2 becomes high write value 55H on P0.
3. Send a high to low pulse to P2.3.
(b) Write a program add block of 10 data stored in external memory locations starting from 5000h and store answer in external memory location 6000h. **07**

- Q.4** (a) Give difference between polling and interrupt. Explain IE and IP SFR for 8051 Microcontroller. **07**
(b) Explain interfacing of LCD with 8051 microcontroller. Write C program to send "Best of Luck" on LCD. **07**

OR

- Q.4** (a) Write ALP program to transfer the message "GTU" serially at 4800 baud rate, 8-bit data, 1 stop bit do this continuously. **07**
Q.4 (b) Explain interfacing of 4x4 matrix keyboard with 8051 microcontroller. Write C program to read switch. **07**

- Q.5** (a) Explain Stepper motor interfacing with microcontroller. Write a program to rotate a motor 64° in the clockwise direction. The motor has a step angle of 2°. Use the 4 – step sequence. **07**
(b) Draw and Explain interfacing of ADC 0804 with 8051 Microcontroller. **07**

OR

- Q.5** (a) Explain interfacing of 8051 with DC motor and PWM. **07**
(b) Draw and explain interfacing of DAC with 8051 microcontroller. Write a program to generate saw tooth waveform at the output of DAC. **07**
