

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1722906****Date: 23-06-2014****Subject Name: Embedded and Real Time Systems****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) (1) Write a brief note on PLD. **03**
 (2) Explain An embedded system with example. **04**
 (b) Enlist and explain common characteristic of an embedded system with suitable Example. **07**
- Q.2** (a) (1) Explain RAM allocation and bit allocation of PSW in the 8051 Microcontroller. **07**
 (2) Show the status of the CY, AC and P Flags after the addition of 38H and 2FH in the following instructions.
 MOV A, Ĩ 38H
 ADD A, Ĩ 2FH
 (3) Explain in brief TCON Function Register. **07**
 (b) Two data bytes are stored at memory location C010H and C011H. Write an A.L.P. to exchange lower nibbles of these two bytes and then store at same memory locations. **07**
- OR**
- (b) (1) Write an A.L.P. to copy the value 59H into RAM memory location 40H to 45H using Register indirect addressing mode without loop. **07**
 (2) Input a random number in register R3 and increment it until it equals FFH.
- Q.3** (a) What are the advantages of using standard single purpose processor over general purpose processor? Enlist and explain standard single purpose processor peripherals. **07**
 (b) Write a detailed note on semaphores-deadlock-process and stack management.
- OR**
- Q.3** (a) What are the basic steps involved in executing an interrupt? Enlist and explain interrupts for 8051 Microcontroller. Which interrupt(s) has the highest priority? **07**
 (b) Explain round robin primitive rate monolithic foreground and background systems. **07**
- Q.4** (a) How USART differs from UART.Explain in detail USART. **07**
 (b) Explain Stepper Motor Interfacing with 8051 Microcontroller. **07**
- OR**
- Q.4** (a) Explain in detail architecture of PIC (16F72) Processor. **07**
 (b) Write a detailed note on PID control. **07**
- Q.5** (a) What are the steps when micro control executes instructions? Explain the concept of pipelining with neat sketches. **07**
 (b) Explain Timers and various timer modes of 8051 microcontroller. **07**
- OR**
- Q.5** (a) Write a short note on Interrupt driven systems. **07**
 (b) Write short note on: RISC concepts. **07**