

Code No: 07A70406

R07**Set No. 2**

IV B.Tech I Semester Examinations, December 2011
MICRO CONTROLLERS AND APPLICATIONS
Common to Bio-Medical Engineering, Electronics And Telematics,
Electronics And Communication Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. With the help of a neat block diagram explain architecture of 80196 microcontroller. What are the improvements over 8051? [16]
2. (a) Explain the control of a DC motor current and direction using internal pulse width modulator in an MCU.
 (b) How do we interface a transducer to an ADC of MCU and generate measured output for an LCD display unit. [8+8]
3. What is task scheduling and Resource sharing? Explain at least two scheduling algorithm to synchronize task or resource [16]
4. How do you program the PSW in 8051. [16]
5. (a) List out the interrupt system specifications.
 (b) Write a brief about multiple interrupt marking. [6+10]
6. (a) Explain the pipeline executing characteristics of ARM? Take an example ARM instruction sequence and explain?
 (b) Explain the difference between Exception handling & Interrupt handling in ARM. [10+6]
7. (a) What are the sequence of action takes when an instruction is reading latch for output port.
 (b) What are the instruction that related to the above category. [10+6]
8. Design a system that runs smoothly with a high speed input and high speed output with neat block diagram. [16]

Code No: 07A70406

R07**Set No. 4**

IV B.Tech I Semester Examinations, December 2011
MICRO CONTROLLERS AND APPLICATIONS
 Common to Bio-Medical Engineering, Electronics And Telematics,
 Electronics And Communication Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
 All Questions carry equal marks

1. (a) Explain four different branch instructions of ARM. Use an example to explain the instruction.
 (b) What are the various multiple-register transfer instructions in ARM? What are its addressing modes in ARM? [16]
2. (a) Explain Round robin pre-emptive multi-tasking algorithm.
 (b) Explain Interrupt latency, interrupt response time and interrupt recovery time in real time operating system. [8+8]
3. What are the applications of interrupts? Explain each with an example. [4×4]
4. (a) What is the necessity of having two accumulators A&B in 8051.
 (b) Show theoretically how an 8051 microcontroller can do the SD operations. [6+10]
5. Write and discuss an application that a 8051 system operates in mode 0 using TIMER'0'. [16]
6. (a) Explain how pulse width modulation technique can be used to control the speed of a dc motor.
 (b) Explain the principle of stepper motor driver. [8+8]
7. How do you resolve the conflicts among stack and register banks? [16]
8. (a) Why should the input to timer 2 from an external event be slower than $4\mu\text{s}$? Assume a 12 MHz crystal is available with 80196.
 (b) What is a high speed input (HSI) interrupt? Why do we call it high speed? [10+6]

Code No: 07A70406

R07**Set No. 1**

IV B.Tech I Semester Examinations, December 2011
MICRO CONTROLLERS AND APPLICATIONS
Common to Bio-Medical Engineering, Electronics And Telematics,
Electronics And Communication Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Describe with examples various modes of the 8051 timers. [16]
2. (a) Explain the serial communication control bits during the half duplex synchronous serial functions in 80196.
 (b) What are the difference between synchronous and asynchronous functions of the SI in 80196? [16]
3. How do you program external interrupts in 8051. [16]
4. (a) Write a program to add data in memory location and data in register.
 (b) Write short notes on instruction set of 8051. [8+8]
5. (a) Describe the implementation of branch, call and return instructions in ARM instruction set. Give examples.
 (b) How does 'Push' and 'Pop' accomplished in ARM? [10+6]
6. (a) Describe the RTOS functions in RTX51 tiny. What are the program and data RAM needs of the tiny?
 (b) List out RTOs function that are not available in RTX51 Tiny but available in RTX51 Full. [8+8]
7. How do you access RAM, I/O, ports using bit addresses? [16]
8. (a) With the help of a neat diagram explain the half-step 8 - step sequence of a stepper motor. Also show the interfacing circuit to 8051.
 (b) Write an assembly code to generate 4 step pulse sequence for a 4-phase stepper motor. [8+8]

Code No: 07A70406

R07**Set No. 3**

IV B.Tech I Semester Examinations, December 2011
MICRO CONTROLLERS AND APPLICATIONS
Common to Bio-Medical Engineering, Electronics And Telematics,
Electronics And Communication Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) When do we use cooperative scheduling and do we use preemptive scheduling?
(b) Explain the importance of each of the following metrics of a real time system:
 - i. Through put
 - ii. Interrupt latencies
 - iii. Average response times and
 - iv. Deadline misses. [8+8]
2. (a) Explain the registers available in different modes of ARM processor operation.
(b) Explain the pipeline structure of ARM 7. [8+8]
3. (a) Draw the 80196 Horizontal windows. What are the uses of these windows?
(b) List non-maskable and maskable interrupts in 80196. [8+8]
4. Narrate the interrupt mechanism of 8051 in detail. [16]
5. Bring out the merits and demerits of polled interrupts and vectored interrupts. [16]
6. (a) By giving the figure for time 2 clock and reset options explain the functioning of the system.
(b) Write short notes on counters. [10+6]
7. (a) Interface an LCD display unit to 8051.
(b) Write a subroutine that, the parameter passed to this subroutine is the starting address of an ASCII string in ROM and the displays the string on the display unit (LCD). [8+8]
8. Write a program to test the RAM of 8051 μ C and explain. [16]
