Code No: 07A7EC16 **R07** **Set No. 2**

IV B.Tech I Semester Examinations,November 2010
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

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1. (a) List non-maskable and maskable interrupts in 80196
   (b) Draw an interupt vector table according to hardware priority of each source group. [8+8]
2. (a) Give the programmer model of ARM.
   (b) Explain SWI instruction in ARM and give its applications. [8+8]
3. Bring out the functional difference between microprocessors and microcontroller by drawing their basic block diagrams. [16]
4. (a) How do you choose scheduling strategy for the periodic, aperiodic and sporadic tasks?
   (b) How does a preemptive event occur? [8+8]
5. (a) What are the SFR (special function registers) addresses.
   (b) How you can access the SFR. [8+8]
6. (a) Give procedure to reset TMOD register.
   (b) Does programming TMOD register effects PSW? If so how? [8+8]
7. (a) If a peumatic actuator is to be driven by a microcontroller, what kind of interface is needed?
   (b) What are the limitations in pulse counting in micro controller? How to count pulses appearing at a very high rate using microcontrollers? [8+8]
8. How do you access RAM, I/O, ports using bit addresses? [16]

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Code No: 07A7EC16 **R07** **Set No. 4**

IV B.Tech I Semester Examinations,November 2010
MICRO CONTROLLERS AND APPLICATIONS
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is the difference between "polling the busy line" and "software delay" in case of an LCD interfacing problem?
   (b) Explain the advantages of an optoisolator circuit. [8+8]
2. (a) What are the advantages of time slice scheduling by an RTOS
   (b) Explain three ways in which an RTOS handles the ISRS in a multitasking environment [8+8]
3. Discuss different kinds of instructions and give two examples for each. [16]
4. (a) What is meant by Thumb state and ARM state? What are the advantages and disadvantages of using Thumb state?
   (b) Explain how ARM -Theve Interworking takes place. [10+6]
5. Find the timer's clock frequency and its period for any two 8051 based systems, with a crystal frequency of 8MHz. [16]
6. Discuss the hardware requirements to needed to implement vectored or polled interrupts. [16]
7. Give flag settings of the following instructions. [8×2]
   (a) ADDC
   (b) RRC
   (c) SETBC
   (d) POP
   (e) XCH
   (f) CLR
   (g) ORL
   (h) ANL.
8. (a) Explain the software times interrupt in 80196
   (b) Justify the priority orders provided in 80196 for the maskable interrupts
   (c) What are vector addresses for Interrept servicing to timer 1 and timer 2 in Intel 80196? [5+5+6]

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Code No: 07A7EC16 **R07** **Set No. 1**

IV B.Tech I Semester Examinations,November 2010
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

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1. Write a program to find the number of ones in register R2. [16]
2. (a) Write the help of a block diagram explain the parallel port interface for the printer, also use RS-232 serial interface and explain.
   (b) Write brief note on IEEE 488 GPIB signals. [8+8]
3. (a) Explain the basic architecture of the kernel. What are the kernel objects?
   (b) With the help of state diagram explain different task states [8+8]
4. (a) How do we program bit rate/clock rate during the synchronous function in an 80196? Explain for a bit rate of 9600 bud/sec
   (b) What is an overrun error?
   (c) For a 12 MHZ crystal with 80196, what is the period between the two inputs to FRC timer 1? [16]
5. (a) Explain the stack operations in ARM.
   (b) What happens if a software interupt instruction SWI is excuted?
   (c) Explain BIC instruction of ARM. [5+6+5]
6. How does a serial data buffer can communicates data serially. [16]
7. What is counter programming in 8051 microcontroller? [16]
8. Write a program to test the RAM of 8051 μC and explain. [16]

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Code No: 07A7EC16 **R07** **Set No. 3**

IV B.Tech I Semester Examinations,November 2010
MICRO CONTROLLERS AND APPLICATIONS
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Why do we have to isolate an MCU sort I/O pins from a physical system?
   (b) Explain the circuit used to interface to an optoisolator.
   (c) Write a brief note on linear incremental encoder in a shaft. [5+5+6]
2. Discuss briefly how a CPU can resolve priorities by giving a specific algorithm and explain in detail. [16]
3. Write short notes on the following:
   (a) Data transfer instructions.
   (b) Bit manipulation instructions.
   (c) Internal RAM. [5+5+6]
4. (a) List the best strategies for synchronisation between the tasks and ISRS.
   (b) Explain the terms process descriptor and process control block [16]
5. (a) Explain the pipeline executing characterstics of ARM? Take an example ARM instruction sequence and explain?
   (b) Explain the diffence between Exception handling & Interrupt handling in ARM. [10+6]
6. What are the methodologies adopted in organizing register banks 0 to 3. [16]
7. (a) We need to find the total number of transactions at the input of 80196. How do we program HSI-MODE Register?
   (b) Justify the priority orders provided in 80196 for the non-maskable interupts? [8+8]
8. Design a speed control system for a two wheeler using timers. [16]

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