Code No: N0423/R07 **Set No. 1**

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical Engineering and Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Write about capture registers.
   (b) Write about control registers. [8+8]
2. Give any four examples for interrupt control flow instruction and explain. [4×4]
3. (a) List out the interrupt system specifications.
   (b) Write a brief about multiple interrupt marking. [6+10]
4. Indicate which mode and which timer are selected for each of the following instructions.
   (a) MOV TMOD, #00H.
   (b) MOV TMOD, #12H.
   (c) MOV TMOD, #15H. [5+5+6]
5. (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 stepermotor. [8+8]
6. (a) Describe the functions of IDE(Integrated Development environment)
   (b) What are the development phases in a project? Explain the software development cycle for a project. [8+8]
7. (a) How is a watch dog time used in 80196? How do we disable a watchdog timer feature in a program? When do we need to disable it?
   (b) Explain PWM-control register of Intel 80196. How can we get a duty cycle of 25% at the PWM output using PWM-control? [8+8]
8. (a) What are the Thumb version load-store multiple instructions? Explain them with example.
   (b) Explain how Thumb state changes to ARM state and vice verse. [8+8]

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Code No: N0423/R07 **Set No. 2**

IV B.Tech I Semester Supplementary Examinations, March 2013
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. Write a program in assembly language of 8051 and draw the timing diagrams for the program to divide two numbers. [16]
2. How do you manipulate the external memory using stack of 8051 microcontroller? [16]
3. Discuss the hardware and software attributes of vectored interrupts. [16]
4. Bring out the merits and demerits of time '0' & timer 1 in all aspects. [16]
5. (a) What are the features of a micro controlled unit for the Industrial process control system.
   (b) How can we use the incremental shaft angle encoder to measure the motor speed every second? [8+8]
6. A Robot has there motors having three angle encodes. Each motor receives an input from three tasks. The fourth task measures the position of each motor and sends three directions to the motors to rotate by a^0, b^0, and C^0 Which RTOS will schedule there tasks and which RTOS functcions are used in this system design[16]
7. (a) How is a watch dog time used in 80196? How do we disable a watchdog timer feature in a program? When do we need to disable it?
   (b) Explain PWM-control register of Intel 80196. How can we get a duty cycle of 25% at the PWM output using PWM-control? [8+8]
8. (a) How can we change the PSR contents through instructions in ARM? Explain different PSR instructions in ARM.
   (b) Explain how a constant is loaded into a general purpose register of ARM processor.
   (c) What is Thumb state? [6+6+4]

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Code No: N0423/R07 **Set No. 3**

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical Engineering and Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Draw and explain the block diagram of external data memory interface. [16]
2. How do you resolve the conflicts among stack and register banks. [16]
3. Narrate the procedure for bit memory map with suitable examples. [16]
4. Narrate how you can program TINEO and TIMER1 in 8051C. [2×8]
5. (a) What is meant by the term 'contact debounce'? How is this problem taken care in the interface of keyboard to a microcontroller?
   (b) A key board has two keys: run and stop. Write a program that is interrupt driven by these two keys using INT0 for run key and INT1 for the stop key. Let the Bounce time is 10ms for the keys. [8+8]
6. (a) What is meant by context switching? Explain with an example
   (b) Explain the Non-pre emptive multitasking technique with an example [8+8]
7. (a) Explain IOCO and IOSO register for timer 1 in 80196
   (b) what are the interrupt sources for synchronous serial transmission and reception in 80196? What are the identification flags and local enable bits for these sources? [8+8]
8. (a) How can we change the PSR contents through instructions in ARM? Explain different PSR instructions in ARM.
   (b) Explain how a constant is loaded into a general purpose register of ARM processor.
   (c) What is Thumb state? [6+6+4]

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Code No: N0423/R07 **Set No. 4**

IV B.Tech I Semester Supplementary Examinations, March 2013
MICRO CONTROLLERS AND APPLICATIONS
(Common to Electronics & Communication Engineering, Bio-Medical Engineering and Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Write in detail about TIMERS in 8051. [16]
2. How do you manipulate the external memory using stack of 8051 microcontroller? [16]
3. Narrate the procedure for bit memory map with suitable examples. [16]
4. (a) Give procedure to reset TMOD register.
   (b) Does programming TMOD register effects PSW? It so how? [8+8]
5. (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 step-permotor. [8+8]
6. (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]
7. (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]
8. (a) What are the Thumb version load-store multiple instructions? Explain them with example.
   (b) Explain how Thumb state changes to ARM state and vice verse. [8+8]

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