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**Question Paper Code : 23395**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Sixth Semester

Electrical and Electronics Engineering

EC 1362/070290034 — MICROPROCESSORS AND MICROCONTROLLERS

(Common to Fifth Semester Electronics and Instrumentation Engineering and  
Instrumentation and Control Engineering)

(Regulation 2004/2007)

(Common to B.E. (Part-Time) Fifth Semester Electrical and Electronics Engineering  
– Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Which instruction is used to perform BCD arithmetic operation?
2. What is meant by opcode fetch cycle?
3. Calculate the number of T states required to generate a delay of 0.5 sec if the crystal frequency is 4MHZ.
4. Specify any 4 instructions to perform logical operation.
5. Find the control word to initialize 8255 in the following configuration.  
Port A-input, port B-output, port C(upper) input, port C(lower) output.
6. Specify the different vector address location of the interrupts of 8051.
7. What are the specifications for the 8 bits of PSW in 8051?
8. Specify the different modes of 8253.
9. Specify the operations of different mode of timers in 8051.
10. What is the difference between RET and RETI?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the functions of software and hardware interrupt structure in 8085 with suitable diagram. (12)  
(ii) Explain about registers with suitable diagram. (4)

Or

- (b) (i) Explain with a suitable diagram about address latch enable. (6)  
(ii) With the help of a suitable diagram explain the architecture of 8085. (10)
12. (a) (i) Explain about all the JUMP instruction in detail. (6)  
(ii) Write the coding and draw the flowchart to calculate the area of a circle for the given radius using 8085. (10)

Or

- (b) (i) Explain about stack structure and its instructions in detail. (6)  
(ii) Write the coding and draw the flowchart to find the median of an array of 13 numbers using 8085. (10)
13. (a) (i) Write a program to blink LED connected to port c bit 3 of the 8255. Assume address of control word register of 8255 as OF and port c register as 0E. (6)  
(ii) Draw the block diagram of 8255 and also explain its different operation modes. (10)

Or

- (b) (i) With the help of a neat diagram explain how interfacing of DAC can be done with 8085. (10)  
(ii) Give a brief idea about the control word for 8251. (6)
14. (a) (i) Write a 8051 assembly language program to receive data bytes serially from PC with a baud rate of 9600. Send the equivalent ASCII character to port 2. (8)  
(ii) Explain how serial data transfer operation is supported by 8051 microcontroller. (8)

Or

- (b) (i) Write a 8051 assembly language program to perform rotational LED display in port 2 and simultaneously use timer 1 interrupt to generate a square wave of 10khz at port 1.1. (8)  
(ii) Explain about the interrupt structure of 8051 microcontroller. (8)

15. (a) With a suitable diagram explain about keyboard and display interface using 8051 microcontroller. (16)

Or

- (b) With a suitable diagram explain about stepper motor control using 8051 microcontroller. (16)
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