

RS 490
Total No. of Pages 3

SIXTH SEMESTER

END SEM EXAMINATION

Roll No

B.E. (EC/COE)

May 2006

EC/COE-311 MICROPROCESSORS

Time: 3 Hour

Max. Marks : 70

Note: Question No. ONE is compulsory and answers any FOUR questions from the remaining. Assume suitable missing data, if any.

1. [a] How many I/O devices [both input devices as well as output devices] can be connected to 8085 in I/O mapped I/O Mode? Justify your answer. 20
- [b] If CALL and RET instructions were not provided in 8085, could it be possible to write subroutines for this microprocessor? If yes, then how?
- [c] How does 8259 communicate the vectored address corresponding to a interrupt request to 8085.
- [d] How does synchronous data transfer differs from asynchronous data transfer.
- [e] Describe the differences between
(i) RST 5 and RST 5.5
(ii) SUB B and CMP B PC HL
- [f] What will be the status of flags after execution of DCX H and DCR H instructions.
- [g] Explain how subtraction is carried out in 8085. 7x2

2. Estimate the rate at which external data from a port can be read, using polled method of I/O. A total of 16 KB of data is to be transferred from a port to the memory.

- [a] Assume I/O mapped I/O device. 5
- [b] How would the rate of data transfer change, if the port is memory mapped. 4
- [c] Estimate the rate of data transfer for an interrupt driven data transfer scheme on a I/O mapped I/O device. 5
- Assume that the system is based on a 8085 and a 2 MHz crystal.

An 8085 based system is interfaced with a 8251 USART

- Describe the hardware connections to reset the 8251 for power on reset as well as reset under program control. 5
- How can an 8085 ensure that a control word being sent to an 8251 will be treated as a mode instruction word? 3
- Explain the software and hardware configuration so that an 8251 can transmit data at 38.4 Kbps but receive data at 4800 bps. 6

Write an 8085 program to generate a continuous square wave of 1 KHz using 8253. The 8253 is mapped at port address 20 H (base address). Clearly specify the 8253 control word. 7

Write an assembly language program to evaluate the following series
$$Y = x_1^2 + x_2^2 + x_3^2 + \dots + x_n^2$$
 4

Explain the scanned key board mode, scanned sensor matrix mode of programmable key board/display Interface 8279. 3

In a master slave configuration of 8259 (Programmable Interrupt Controller), a slave is connected to IR_7 of master. The base address of the master and the slave are FCH and FEH respectively. Initialize the master and the slave for the following specifications.

8085 system-normal EOI mode, non buffered environment, fully nested mode and CALL address interval of 8 bytes. All the IR pins except IR_7 of the master and the pins IR_1 , IR_2 , IR_3 and IR_4 of the slave are to be masked.

The address space available for jump tables (tables containing the branching address) of the master and slave is from 0F10H to 0FFFH. Indicate the addresses of first CALL IR_0 of both master and slave. 10

Can more than one bit remain set at any time in the interrupt service register in non AEOL mode? If possible, then show how. 4

Explain mode-2 operation of 8255.

Write a program to display the numbers stored in memory locations 2400H to 2404H in BCD form using 8255, (use look up tables). Assume the control word address of 8255 is 80H. The unit place decimal digit is connected to port B and the 10th place decimal digit is connected to port A.

00H 01H 02H 03H 04H

- Write short notes on any two
- 8251 for synchronous transmission mode operation
- 8085 interrupt structure
- Addressing modes of 8085 with examples.
- Memory interfacing

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