4E2914

Roll No. : _____ Total Printed Pages : 3

4E2914

B. Tech. (Sem. IV) (Main / Back) Examination, June/July - 2011
Computer Engg. & I. T.
4IT1 Microprocessor & Interfaces

Time : 3 Hours] [Total Marks : 80
[Min. Passing Marks : 24

Attempt any five questions. All questions carry equal marks. Schematic diagram must be shown wherever necessary. Any data you feel missing suitable be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. Nil 2. Nil

1 (a) How a program is executed by microprocessor 8085 ? Explain by using diagram of flow of signal for the execution of a stored instruction.

(b) Explain the requirement of a program counter, stock pointer and instruction register in the architecture of Intel 8085 microprocessor. 8+8

OR

1 (a) Why a microprocessor needs ROM and RAM ? write the procedure to communicate with memory by a microprocessor.

(b) Explain the function of flag register in MP 8085. What is the use of the general purpose registers W and Z ? 8+8

2 (a) Explain the following instructions indicating their addressing modes, flags affected, number and names of machine cycles on the execution of each : XRA A, CALL, XTHL, LHLD.

(b) Write a program to count number of 1's and 0 bits in a register. Assume data is in B register and store number of 1 in H register, 0 in L register. 8+8

OR

2 (a) Write a program to compare two string of ASCII characters to see if they are same. The length of the string is in memory location 90XXH: One string starts in memory location A0XXH and the other in memory location BOXXH. If the two strings match, clear the memory location BOXXH otherwise set memory location BOXXH to FF H.

(b) Explain with example, how flags can be set or reset in 16 - bit instructions.

 10+6

3 (a) Draw the timing diagram for the instruction SHLD BABAH. Show of the status of the various signals :

A_8–A_{15}, AD_7–AD_0, ALE, $\overline{RD}$, IO|$\overline{M}$, S_0, S_1, $\overline{WR}$.

(b) What is the difference between MACROS and subroutine. Explain with example.

8+6

OR

3 (a) Draw and explain the block diagram of 8259 PIC.

(b) Interface two chips of 4K byte RAM and two chips of 2K byte ROM to MP 8085, by absolute decoding using 74 LS 138 decoder. Give the memory map starting at address 8000H for EPROM.

 8+6

4 (a) Draw the functional block diagram of 8254 IC and explain how this can be used to obtain a signal having frequency equal to 1/6 of input clock signal.

(b) Interface two LEDs using common anode and common cathode technique. Show the complete interface.
Write the program to blink them alternately.
Assume part addresses in IO mapped IO.

8+8

OR

4 (a) Draw the block diagram of 8255 PP1. What are different operating modes of 8255 PP1 ? Discuss how to determine the control word for 8255 ?

(b) Interface the keyboard and display controller 8279 with 8085 at address ABCOH. Write an ALP to set up 8279 in scanned keyboard mode with encoded scan, N-key roll-over mode. Use 16- character display in right entry display format.

8+8

5 (a) Write a program to transmit 256 bytes of data from system A. Asychronous transmission is to be done using 8251 and RS 232 C cable. Draw a schematic diagram to show how RS 232C cable is connected through 8251 to 8085.

(b) Write short note on IEEE 488.

12+4

OR

5 (a) Interface 8 switches and a seven segment display to 8085 through 8255 PP1. Write a program to display the switch. when a switch is open. Assume that the 8255 is interfaced in memory mapped IO technique.

(b) Specify mode word, command ward and status word to transmit data. The TXC is 153.6 KH_z. The requirement of system is :

(1) Asynchronous mode with 9600 band

(2) Character length 5 bits

(3) 1 stop bit

(4) Even parity check.

10+6