Code : 031611

B.Tech 6th Semester Exam., 2019

MICROPROCESSOR AND ITS APPLICATION

Time : 3 hours   Full Marks : 70

Instructions :

(i) The marks are indicated in the right-hand margin.

(ii) There are **NINE** questions in this paper.

(iii) Attempt **FIVE** questions in all.

(iv) Question No. **1** is compulsory.

1. Differentiate between the following (any seven) :   2×7=14

   (a) Microcontroller and Microprocessor

   (b) High-level and Low-level language

   (c) RISC processor and CISC processor

   (d) I/O mapped I/O and Memory mapped I/O

   (e) Assembler and Cross assembler

   (f) CALL and JMP

   (g) STAX and LDAX

   (h) XTHL and PCHL

   (i) RIM and SIM

2. (a) Draw and explain the architecture of 8086. Describe the function of queue in 8086. How does the queue speeds up processing?   6

   (b) Discuss the addressing technique used in 8086 and explain the various addressing modes of 8086.   8

3. Draw the block diagram of 8254 PPI and explain the various modes in which 8254 can operate and write down the control word for each mode. Specify the conditions to start the timer of 8254 PPI.   14

4. Draw the block diagram of 8257 DMA controller. Explain the working of 8257 along with the different modes in which 8257 can operate.   14

5. Explain the different interrupts available in 8085 processor. What is the purpose of the instructions RIM and SIM? How the status of pending interrupts is checked? Assuming the microprocessor is completing an RST 7·5 interrupt request, check to see if RST 6·5 is pending. If it is pending, enable RST 6·5 without affecting any other interrupts; otherwise, return to the main program.   14
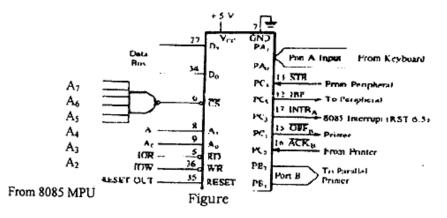
6. The figure given below shows an interfacing circuit using the 8255 PPI in mode 1. Port A is designed as the input port for a keyboard with interrupt I/O, and port B is designed as the output port for a printer with status check I/O. For the given interfacing circuit, do the following :   14

(a) Find port addresses by analyzing the decode logic.

(b) Determine the control word to set up Port A as input and Port B as output in mode 1.

(c) Determine the BSR word to enable $INTE_A$ (Port A).

(d) Determine the masking byte to verify the $\overline{OBF_B}$ line in the status check I/O (Port B).

(e) Write initialization instructions and a printer subroutine to output characters that are stored in memory.

From 8085 MPU   Figure

7. A set of ten packed BCD numbers is stored in the memory location. Write a program to add these numbers in BCD, if carry is generated save it in register B, and adjust it for BCD. Write a subroutine to unpack the stored BCD sum and store it in two consecutive memory locations.   14

8. Two sets of three readings each are stored in memory. Write a program and draw the flowchart to sort the readings in descending order, assuming that the two sets are separated by word FFH.   14

9. Write a program to insert a string of four characters from the tenth location in the given array of 50 characters.   14

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