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(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 121504 | Roll No. | | | | | | | | | |

B.Tech.

(SEM. V) THEORY EXAMINATION, 2015-16

MICROPROCESSOR & ITS APPLICATIONS

[Time:3 hours] [Total Marks:100]

SECTION-A

Note: **All** questions are ***compulsory.***

1. Attempt all parts . All parts carry **equal** marks. Write answer of each part in short . **(2x10=20)**

(a) What is microprocessor? Give the power supply & clock frequency of 8085.

(b) Specify the memory addressing capacity of 8085 microprocessor. How many address lines are required to address 2MB memory.

(c) Define instruction cycle, machine cycle and T-state in microprocessor operation.

(d) Specify the type of addressing mode used in following instructions-

i. MOV AX,[2050 H]

ii. IN AX, DX

(e) List advantages of memory- mapped I/O mapped I/O technique of data transfer in microprocessor .

(f) Explain the execution of following instruction in 8086-

i. PUSH S

ii. SBB BX, CX

(g) How does the microprocessor differentiate between data and instruction?

(h) Compare RET and POP instructions in microprocessor.

(i) Explain the need of memory segmentation in 8086.

(j) Calculate the execution time for the following code using 8085 operated at 3 MHz clock frequency.

MVIB,37H

HLT

SECTION-B

Attempt **any five** questions from this section. (10x5=50)

2. Draw the flow chart and write assembly language program for the addition of two 16-bit numbers considering carry. The numbers are stored in memory starting from 2000H. Store the result of addition and carry from memory 3000H.

3. With the neat pin and block diagram and describe the internal architecture of 8085. State the function of each block shown.

4. Draw and explain the timing diagram of memory read operation in 8085. Write different step used in it.

5. Write an assembly language program to generate a delay of 1msec. Also show the calculation of time delay. Assume that the crystal frequency if 8085 is 6 MHz.

6. Describe the various addressing modes of 8086 with suitable example of each.

7. a) With a neat diagram discuss internal architecture of 8255.

   b) Write a program to initialize 8255 as follows-

   PortA: Simple input port

   Port B: Simple output port

   Port C_L: Output port

   Poer C_U: Input port

   Assume the address of control register is 03H.

8. Explain the role of interrupts in programming. Explain the interrupts used in 8085. List out all the vectored interrupts of 8085 and give their vector address.

9. With the neat block diagram describe the internal architecture of 8086. State the function of each block shown. Explain the use of instruction queue.

SECTION-C

Attempt **any two** questions from this section. (15x2=30)

10. What do you understand by DMA? With the help of block diagram explain the working of 8237/8257.

11. (a) What is 8237/8254 programmable interval timer, draw and explain its internal architecture.

(b) Explain how 8253/8254 can be used as a square wave generator.

12. Give a block diagram and describe the use of microprocessor to control the temperature of an electric oven. With the help of flow chart explain the algorithm used for temperature control.

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