Punjab Technical University M.C.A Computer Aplications

INTRODUCTION TO MICROPROCESSOR (MCA - 205)

MCA (Semester-2nd)

Time : 03 Hours
Maximum Marks : 60

Instruction to Candidates:

1) Attempt any one question from each Section - A,B,C & D.

2) Section - E is compulsory

3) Use of Non-programmable Scientfic Calculator is allowed.

Section – A

(1 * 9 = 9)

Q1) Explain all units for 8085 MPU with its functional block diagram. Also draw the timing diagram for IN ainstruction.

Q2) What do you mean by a machine cycle? Discuss this by taking example of STA 2000H.

Section – B

(1 * 9 = 9)

Q3) Explain various addresing modes availabale in 8086 with examples. Draw labeled pin diagram of 8086 also.

Q4) How many status flags 8086 have? Discuss the role of each flag. Explain the clock generator 8282A.

Section – C

(1 * 9 = 9)

Q5) Write a procedure that produces a delay of 3.33ms when run an 8086 MPU with a 5MHz clock. Write a mainline program which uses this procedure to output a square wave on bit Do of port FFFAH.

Q6) A string of data bytes is stored starting from memory location 2050H. The string includes some blanks(bytes with zero value). Write a program to eliminate the blanks from string.
Data (H): F2, 00, 00, 4A, 98, 00.
Describe the code with the help of flow charts also.

Section – D

(1 * 9 = 9)

Q7) Describe 8257 interrupt controller in detail. What is vectored inteerupt?

Q8) Discuss the function of a co-processor? Are co-processor built on separtae IC for the lates CPUs?

Section – E

(12 * 2 = 24)

Q9) (a) How many bits are required by 256 * 4 memory chip? Can this chip be specified as 128-bytes memory?

(b) IF microprocessor 8085 has fetched the machine code located at the memory location 205FH, specify the contents of the ptogram counter and all other regisers with all steps covered.

(c) If an output and input port can have the same 8-bit address, how does the 8085 differentiate between the ports?

(d) What are different types of mapping techniques in 8085. explian with examples?

(e) Write a program to simpify the following Boolean Expression:
- - - --
1.= ABC + ABC + ABC

(f) What operation can be performed by the instruction XRA A? specify the Status of Z

and CY in all logical instructions in 8085.

(g) What is pipelining? How is it achieved in 8086? What are advantages?

(h) If the speed of I/O devices do not match with the speed of the microprocessor, what type of data transfer techniques are used? Describe them briefly.

(i) What is DMA data transfer scheme? Discuss the function of 8237 or 8257

(j) Find the syntax errors in the following instructions:

(1) MOV BH, AX

(2) MOV 7632H, CX

(3) MOV DX,CL

(4) IN BL, 04H

(5) ADD AL, 2073H

(K) Explian the control signals used for 8085 microprocessor.

(l) In addition to the function of a general purpose register, what other function are performed by the register BX, BP and CX?