

Roll No.

Total Pages : 4

238304

December, 2019

M.Sc. (Physics) - III SEMESTER

Microprocessor (PHL-304)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) How Many machine cycles constitutes one instruction cycle in 8085. (1.5)
- (b) What is a system bus? (1.5)
- (c) Define immediate addressing with an example. (1.5)
- (d) What is the function of auxiliary carry flag used in 8086 microprocessor? (1.5)

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- (e) Write an ALP in 8086 microprocessor to add two 16 bits numbers. (1.5)
- (f) How many memory locations can be addressed by a microprocessor with 14 address lines? (1.5)
- (g) What are the tasks involved in keyboard interface? (1.5)
- (h) Write any two advantages of segmentation of memory in 8086 microprocessor. (1.5)
- (i) What is the difference between MOV AX, 1000H and MOV AX, [1000H]? (1.5)
- (j) What is meant by DMA operation? (1.5)

PART - B

2. (a) Explain the functions of the following :
- (i) Debugger
 - (ii) Assembler
 - (iii) Linker
 - (iv) Compiler. (10)
- (b) What are the differences between assembly language and machine language? (5)

3. (a) Explain the address generation process in 8086 of DS=3458H and SI=13DC H. Calculate physical address. (5)
- (b) Explain the block Diagram of 8086 and describe its sub-blocks such as EU and BIU and various registers in details. (10)
4. With the neat diagram, describe the minimum mode operation of 8086. List & describe functions of signals of minimum mode of 8086. Also draw its timing diagram. (15)
5. (a) Draw an interfacing diagram of three numbers of 8k × 8k size RAM memory chip with the 8086 microprocessor. (5)
- (b) Calculate the memory address the following instructions will access. Also explain the addressing modes that are used by each instruction.
- (i) MOV CX, [2345H]
- (ii) MOV DX, [BP]
- (iii) MOV DX, [BP+DI]. (10)

6. (a) Draw the pin diagram of 8051 microcontroller and explain every pin. (10)
- (b) Specify the handshake signals and their functions if Port A of the 8255 is set up as an output port in MODE 1. (5)
7. (a) Why memory segmentation is done for 8086? Discuss the different memory banks in the 8086 microprocessor. (5)
- (b) Generate the machine codes for the following :
- (i) SUB BH, DL where code for SUB is 001010.
- (ii) MOV CL, [BX + 39A2H] where code for MOV is 100010. (10)
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