

Exam.Code:0922
Sub. Code: 33527

2015
B.E. (Information Technology)
Fourth Semester
PCIT-401: Microprocessor and Assembly Language Programming

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Explain the operation of following instructions. How many bytes are consumed by them? DAD, CC
- b) Which addressing mode is used for following instructions: DCR M , PCHL
- c) How many machine cycles and T states are required by JMP instruction? Name each of these machine cycles.
- d) If registers BC = 52H, DE = FFH, HL = 4EH, what do they contain after the sequence of instructions below:

PUSH B

PUSH H

PUSH D

POP B

POP D

POP H

- e) Write down one peripheral I/O and one memory mapped I/O instruction. (5x2)

UNIT - I

II. Explain the function of following signals of 8085 microprocessor:

- i) HLDA (ii) S₁ , S₀ (iii) IO/M' (iv) INTR (10)

III. a) Differentiate between Peripheral I/O and Memory mapped I/O instructions.

- b) Write an assembly language program of 8085 to convert ASCII number in memory to its equivalent decimal number. (2x5)

P.T.O.

(2)

- IV. 10 bytes of data are stored in memory location at XX21H to XX2AFH. Write a program in 8085 to transfer this entire block of data to a new memory location starting at XX25H to XX2EH. (10)

UNIT - II

- V. Calculate the time delay in the following loop, assuming the system period is 0.33microsecs:

```
LXI B, 12FFH
DELAY: DCX B
XTHL
XTHL
NOP
NOP
MOV A,C
ORA B
JNZ DELAY
```

Also, mention the T states for each of the instructions. (10)

- VI. a) Write a subroutine to load H and L direct through DE. It should load register L with the contents of memory location pointed by DE. Further, it should load register H with the contents of memory location pointed by succeeding memory location. The subroutine should leave all the microprocessor registers, except H and L, unaltered including the flag register. Example if the contents of DE register pair and HL register pair are 1360H and 2299H respectively, then the contents of memory location 1360 and 1361 should be FF and AA respectively.
- b) What is a stack? On what principle does it work? Is it necessary to initialize the stack pointer while writing the program? Why? (2x5)
- VII. a) Write a program to enable all the interrupts of 8085. Mask all the interrupts of 8085 except RST 6.5.
- b) Draw and describe the working of Programmable Interrupt Controller. Which IC is used for this purpose? (2x5)