Exam.Code:0915
Sub. Code: 6394

2123

B. E. (Computer Science and Engineering)
Third Semester
CS-304: Microprocessors

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 Section.***

x-x-x

Q1. Attempt the following:-

(a) Explain the function of S1, S0, ALE , IO/ $\overline{M}$ pins of 8085. (2)

(b) What will be the value of accumulator for the program given below: (2)

```
MVI C, 7F H
MVI B, 3E H
MOV A,B
RLC
RLC
ANI 7F H
HLT
```

(c) Explain following 8085 instruction: PUSH, JMP, RSTn and CALL with suitable examples. (2)

(d) With the neat circuit diagram indicate a possible chip select circuit needed to have the address of memory-mapped I/O port as 7FE7H. (2)

(e) Explain the mode definition control word of 8255. Write the required mode definition for: Port A: mode 1 input, Port B: mode 0 input, Port C upper: PC_{7-6} output, Port C lower: PC_{2-0} input. (2)

SECTION – A

Q2.

(a) Explain the Compare instructions of 8085 with help of suitable examples. (3)

(b) Enlist the merits and demerits of I/O mapped and memory mapped I/O. (3)

(c) Write an assembly language program to find average of N numbers. (4)

Q3.

(a) What is a machine cycle? Explain the timing diagram of MVI M, 56H instruction. (5)

(b) Write a 8085 assembly language program to fill up a block of 1000H bytes starting from 8000H with ASCII value of 0 digit. (5)

P.T.O.

Q4.

(a) A set of 10 current readings are stored in memory location starting form 2000H. The readings are expected to be positive. Write a program to: (5)

i. Check each reading to determine whether it is positive or negative.
ii. Reject all negative readings
iii. Add all positive readings.
iv. Output FF H to port 1 at any time when the sum exceeds 8-bits to indicate overload; otherwise display the sum.
v. Store FFH in the memory location 3005H when sum exceeds 8-bits; otherwise store the sum.

(b) Show interfacing of 2K RAM with 8085 microprocessor if the starting address is 3000H. 2K RAM is to be constructed by using RAM chips of 512x8 size. Give the complete address range. (5)

SECTION-B

Q5

(a) With a neat diagram describe the architecture of the 8085 interrupt system. (5)
(b) Write a short note on 8257 DMA controller. (5)

Q6.

(a) Write a program to output 00 and 01 alternatively on port10 with a 1 second delay between each output. Assume the clock frequency of 8085 is 3 MHz. (4)
(b) Write a program to find factorial of a number using subroutine. (4)
(c) Write a short note on model of 8253 PIT. (2)

Q7.

(a) Explain the data transfer from PORT B of 8255 to 8085 in interrupt-driven mode. (5)
(b) Provide a chip select circuit for 8255 so that port addresses are in the range of 2048H-204BH using memory mapped I/O. (2)
(c) Describe the status register of 8279. (3)

x-x-x