Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name : Microprocessors and Microcontrollers

Subject Code : 5SC02MPM1 **Branch: M.Sc. (Physics)**

Semester : 2 **Date :29/04/2019** **Time : 02:30 To 05:30** **Marks : 70**

Instructions:

(1) Use of Programmable calculator and any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

SECTION – I

Q-1 **Attempt the Following questions** **(07)**

a. What do you mean by MPU?
b. What is an instrumentation cycle?
c. Define timing and control unit.
d. Write the mnemonics for the following arithmetic operations: ADI, SUB, SUI, INR.
e. Give the classification of branch operations.
f. What is meant by ALU?
g. Write basic concept of memory interfacing.

Q-2 **Attempt all questions** **(14)**

a. What is memory? Draw a basic memory structure. Discuss the basic concept in memory interfacing with the microprocessor. **(07)**

b. Write a program to perform the following functions and also verify its output: **(07)**
1. Load the number 8BH in register D,
2. Load the number 6FH in register C,
3. Increment the contents of register C by one.
Add the contents of registers C and D and display the sum at the output PORT 1.

OR

Q-2 **Attempt all questions** **(14)**

a. Differentiate microprocessors and microcontrollers. **(07)**
b. Explain in detail memory mapped I/O of 8085 microprocessor. **(07)**

Q-3 **Attempt all questions** **(14)**

a. Write a detailed note on 8085 Microprocessing Unit. **(07)**
b. Discussin details with diagram of pin outs and signals of 8085 MPU. **(07)**

OR

Q-3 **a.** Write short note on the arithmetic operations instruction set and mnemonics. **(05)**
b. Discuss arithmetic logic unit with its all flags. **(05)**

c. Show the program of data masking with Logic AND. **(04)**

SECTION – II

Q-4 **Attempt the Following questions** **(07)**

a. Define DPTR register. For which purpose it is used?
b. What are meant by A and B CPU registers?
c. What is stack pointer?
d. What is the function of an address bus?
e. What is PSEN (out)?
f. Which special function resisters are used for interrupt?
g. What do you mean by microcontroller?

Q-5 **Attempt all questions** **(14)**

a. Using block diagram of 8051 microcontroller, explain it briefly. **(07)**
b. Discuss counters and timers in 8051 architecture briefly. **(07)**

OR

Q-5
a. Explain the special function register. **(04)**
b. Give a program to exchange the internal RAM location 20H and resister B. **(05)**
c. Discussrole of oscillator and clock in 8051 microcontrollers **(05)**

Q-6 **Attempt all questions** **(14)**

a. Explain internal RAM (organization) and internal ROM. **(07)**
b. Briefly describe external memory and its connections **(07)**

OR

Q-6 **Attempt all Questions** **(14)**

a. Write different types of data transfer instruction and explain any four. **(05)**
b. Write short note on special function registers. **(05)**
c. What is an interrupt? State its types and discuss. **(04)**