[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5650 **J**

Unique Paper Code : 2223010022

Name of the Paper : Microprocessor

Name of the Course : **B.Sc. Hons. - (Physics)_NEP: UGCF-2022**

Semester : VI

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt four questions in all, including Question No. 1 which is compulsory.
3. All questions carry equal marks.

1. Attempt any five questions: (5×3=15)

   (a) Explain the function of the following registers in a 8085μP

   (i) Program counter

   (ii) Stack pointer

   (iii) Accumulator.

   (b) How EPROM and EEPROM differ in the erasing process of the stored content?

   (c) What is the use of the following pins: RESET, HOLD and READY?

P.T.O.

(d) Explain the instruction XRA A? Specify the status of zero and carry flags after the execution of this instruction.

(e) What is an interrupt? List them in order of priority.

(f) The memory address of the last location of 1K bytes of memory chip is given as FF00 H. Calculate the starting address.

2. (a) Draw the logic pin out diagram of 8085 microprocessor wherein all the different signals are depicted and classified in different groups.

(b) Write an assembly language program to exchange the contents of memory location 2020 H and 2021 H. (7, 8)

3. (a) Write an assembly language programs to add six 8-bit numbers (stored at memory location 2000H to 2005H). The sum is to be stored in the memory locations 2006H and the carry in 2007H (if any).

(b) A microprocessor with 16-address lines uses 4K bytes RAM chip. How many chips would be needed for total of 24 Kbytes RAM. Write the address ranges for each chip. (10, 5)

4. (a) Explain the function of the ALE and IO/$\overline{M}$ signals of the 8085 microprocessor. Explain the need to demultiplex the bus $AD_7 - AD_0$.

(b) Write an assembly language program to add list of 10 numbers available at memory location 2051 to 205A (8, 7)

5. (a) Describe the steps and timing of data flow when the instruction code 0100 01111 (4FH – MOV C, A), stored in location 2005 H, is being fetched.

(b) Write an assembly language program to add two 16-bit numbers:

(i) (02A1) H and

(ii) (0361) H

Add these two numbers using DAD and without using DAD instructions. (10, 5)