PC-003-1153004 Seat No. _____

M. Sc. (Electronics) (Sem. III) (CBCS) Examination

May / June - 2018

Paper - 12 : 8086 Microprocessor

Faculty Code : 003

Subject Code : 1153004

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following questions in brief : (Any **Seven**) **14**

(1) Enlist 8086 interrupt types in their decreasing priority.

(2) Explain role of Bus Interface Unit (BIU) in brief.

(3) Write a brief note on dedicated, reserved and general use memory.

(4) Enlist various methods of address encoding. Explain any one.

(5) What is memory segmentation? Explain in brief.

(6) Explain DIV instructions for 8 and 16 bit operands.

(7) Write a program to calculate Σn where n is an 8 bit number stored at DS:2000H. Store the result in AX.

(8) Write an assembly program to count length of a string stored at 2000H onwards.

(9) Explain XCHG instructions.

(10) Explain instruction SHL and SAL with suitable example.

2 Attempt any two of the following questions : **14**
(Each 7 Marks)

(1) Draw the internal architecture of 8086. Explain in detail function of each block.

(2) With neat diagram explain working of 8284 clock generator IC.

(3) With help of flow-chart explain the sequence of events taking place when an interrupt is served.

3 Answer the following questions :

(1) Write a short note on pointer and index registers of 8086. **5**

(2) Write an assembly program to find average of 20 8-bit numbers stored at location 2000H onwards. Store the result at location 2020H. **5**

(3) Write a detailed note on assembly program development tools. **4**

OR

3 (1) Write a detailed note on minimum mode IO write bus-cycle. **5**

(2) Write an assembly subroutine to calculate factorial (n!), where n is an 8-bit number stored at 2000H. Store the result to be returned in AX. **5**

(3) Explain all addressing modes for control transfer instructions. **4**

4 (1) What is isolated IO? With necessary diagrams explain minimum and maximum mode interfacing of isolated IO. **5**

(2) Give a detailed account on string instructions. **5**

(3) Given a string of ASCII characters at 2000H onwards. Write an assembly program to find and ASCII character `A' in it. If found store its offset address in register BX. (ASCII code of `A' is 41 H) Write a detailed note on maximum mode IO read bus-cycle. **4**

5 Answer any **two** of the following questions : **14**
(Each 7 Marks)

(1) Explain working of 8288 bus controller IC with necessary diagrams.

(2) Enlist minimum mode signals for 8086. Explain each in not more than 3-4 lines.

(3) Enlist all branching instructions and explain.

(4) What is a subroutine? Explain CALL and RET instructions.
Write an assembly program to find largest on 10 8-bit numbers stored at 2000H onwards using subroutine.