Question Paper

Exam Date & Time: 05-Jul-2022 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
IV SEMESTER B.Sc.(Applied Sciences) in Engg.
END SEMESTER THEORY EXAMINATION-MAY/JUNE 2022

MICROPROCESSORS [ICS 241]

Marks: 50   **Duration: 180 mins.**

Answer all the questions.

Missing data may be suitable assumed.

1)

A) Draw a neat diagram showing the architecture of 8086. State the purpose of control flags in 8086 and explain the various control flags. How does it differ from conditional flags ? **(5)**

B) Using the register values listed below, determine the effective address and physical address of the byte/word read or written in each of the instructions given below. Also write and explain the addressing mode of the source operand in each instruction Solve each instruction independently. All values provided in the table are in hexadecimal. All answers must also be provided in hexadecimal.
i) ADD DL,[BX+SI]
ii) SUB AX, SS:[BP+10h] **(5)**

Register	Value	Register	Value
BX	5000	DI	2056
SI	0003	CS	4500
SS	2E00	DS	5600
BP	8A00	ES	7800

2)

A) Write an assembly language program to find the GCD of two numbers by using procedure. Pass the inputs as parameters to the procedures through registers and return the result to the main program also through registers. **(5)**

B) Write equivalent instruction sequences using string instructions for each of the following: **(3)**

```
i) MOV AX, [SI]        ii) MOV AL,[DI]       iii) MOV AL,[SI]
   INC SI                  CMP AL,[SI]            MOV [DI],AL
   INC SI                  DEC SI                 INC SI
                           DEC DI                 INC DI
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