

(3 Hours)

[Total Marks: 80



N.B.: (1) Question No. 1 is compulsory.

(2) Solve any **three** questions out of remaining **five**.

(3) Figures to **right** indicate **full** marks.

(4) Assume suitable **data** where **necessary**.

1. Solve any four out of five sub questions. [04 x 05=20]
 - a) Differentiate between minimum and maximum mode of operation of 8086 microprocessor.
 - b) Explain any five arithmetic instructions of 8086 microprocessor with suitable examples.
 - c) Draw and explain basic instruction execution cycle.
 - d) Describe Nano programming.
 - e) Explain the hierarchical organization of computer memory.

2.
 - a) Explain with suitable diagram architecture of 8086 microprocessor. 10
 - b) Explain hardwired approach to the design of a control unit. 10

3.
 - a) Represent the number $(-0.125)_{10}$ in single and double precision IEEE 754 binary floating point representation formats. 10
 - b) Write 8086 Assembly Language Program to convert two digit packed BCD number to unpacked BCD number. 10

4. a) Identify the addressing modes of following instructions and explain their meaning. 10
 - I. MOV AX, 1000
 - II. MOV AX, [1000]
 - III. MOV AX, BX
 - IV. MOV [BX], AX
 - V. MOV AX, [SI+200]b) Draw the flowchart of Booths algorithm and multiply $(-7)*(3)$ using Booths algorithm. 10

5.
 - a) Explain working of DMA and its different configurations. 10
 - b) Explain different cache memory mapping techniques. 10

- 6 Write notes on (**any two**) 20
 - a) Interleaved and Associative memory.
 - b) Interrupt driven I/O
 - c) Pipeline Hazards