

(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) Compare Computer Organization and Computer Architecture.
 - b) Explain various pipeline hazards.
 - c) Differentiate between Hardwired and Micro programmed control unit.
 - d) Discuss various characteristics of memory.
 - e) Explain following instructions of 8086 microprocessor –ADC, DAA, MOVSB, LEA, ROL

2.
 - a) Discuss various addressing modes of 8086 microprocessor with example. 10
 - b) Using Booth’s algorithm demonstrates multiplication of $(-7)*(-6)$. 10

3.
 - a) Explain concept of DMA in detail. 10
 - b) Describe various cache memory mapping techniques. 10

4.
 - a) Describe Flynn’s classification in detail. 10
 - b) Divide 13 by 4 using restoring division algorithms. 10

5.
 - a) Describe Minimum modes of 8086 microprocessor in detail. 10
 - b) Express $(-10.100)_{10}$ in IEEE 754 single & double precision standard of floating point number representation. 10

6. Write short notes on: (**any four**) [04 x 05=20]
 - a) Segmentation concept of 8086 microprocessor.
 - b) Cache coherency
 - c) Von Neumann architecture
 - d) Programmed I/O
 - e) Six stage instruction pipeline