(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
