(3 Hours) **[Total Marks: 80]**

N.B.   1. Question No 1 is compulsory.
        2. Solve any **three** questions out of remaining five questions.
        3. Assume suitable data if necessary.
        4. Figures to right indicate marks.

Q. 1. Solve any **four** out of five.   (4*5=20)

   a) Draw and explain memory hierarchy.

   b) Differentiate between MIN and MAX mode of 8086 Microprocessor.

   c) Discuss the importance of Nano Programming.

   d) Express $(15.125)_{10}$ in IEE 754 single precision floating point representation.

   e) Explain following instructions of 8086 microprocessor – OR, DAA, INC, JNZ, POP

Q. 2 a) Draw and explain internal architecture of 8086 microprocessor. .   [10]

   b) Draw the flowchart of Booths algorithm and perform -7 X 3.   [10]

Q. 3 a) Perform 18 divided by 5 using Restoring division algorithm.   [10]

   b) What is the need of DMA in computer system? Explain in detail its

      operation in various modes..   [10]

Q. 4 a) Discuss various memory characteristics in detail.   [10]

   b) Compare Hardwired and Microprogrammed Control Unit.   [10]

Q. 5 a) Explain Direct Cache Memory mapping in detail with example.   [10]

   b) Write assembly language program for 8086 microprocessor to find whether a

      8 bit number stored at 1000H is even or odd number. Store the 00H or

      01H at 1001H if the number is even or odd respectively.   [10]

Q. 6 a) Explain with example addressing modes of 8086 microprocessor   [10]

   b) Draw and explain the various pipeline hazards.   [10]

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