Duration: 3hrs **[Max Marks:80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1		Attempt any FOUR	**[20]**
	a	Discuss any five arithmetic instructions of 8086 with examples.	
	b	Explain Memory hierarchy with diagram.	
	c	Minimize the following boolean function using K map $F(A, B, C) = \Sigma m(0, 1, 6, 7) + \Sigma d(3, 5)$	
	d	Explain full adder with diagram	
	e	Convert $(-1259.125)_{10}$ in the IEEE 754 single precision standard.	
2	a	Explain concept of DMA in detail with diagram	**[10]**
	b	Discuss various cache memory mapping techniques with advantages and disadvantages of it.	**[10]**
3	a	Draw Flowchart of Restoring division technique and divide 13 by 5 using Restoring division technique.	**[10]**
	b	List and explain Key Characteristics of Computer memory.	**[10]**
4	a	Write 8086 Assembly Language Program to count the number of 0's and 1's in given 8-bit numbers.	**[10]**
	b	Discuss various Pipeline Hazards with examples.	**[10]**
5	a	Draw flowchart of Booth's algorithm. Using Booth's algorithm demonstrate multiplication of (-11)*(-5).	**[10]**
	b	Discuss various addressing modes of 8086 microprocessor with example.	**[10]**
6	a	Write short note on Flip Flops	**[10]**
	b	Minimize the following boolean function using K map $F(A, B, C, D) = \Sigma m(0, 2, 8, 10, 14) + \Sigma d(5, 15)$	**[10]**