Duration: 3hrs **Total 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	Convert $(1110010.1010)_2=(?)_{16}(?)_8$ $(?)_{10}(?)_{gray}$ $(?)_{xs\text{-}3code}$	**[5]**
	b	Implement 8:1 Mux with 4:1 Mux	**[5]**
	c	What is latch? How a latch is different from flip flop?	**[5]**
	d	Compare SRAM and DRAM	**[5]**
	e	Compare PLA and PAL	**[5]**
2	a	$F(p,q,r,s)=\sum m\ (0,2,5,6,8,9,11,13)$ +d(3,7,15) solve using K-map	**[10]**
	b	Explain the sample and hold circuit.	**[10]**
3	a	Explain the MasterSlave JK flipflop.	**[10]**
	b	Explain the classification and characteristics of memory.	**[10]**
4	a	Design the 4 bit Asynchronous counter.	**[10]**
	b	Implement 3 bit binary to gray converter using NAND gate	**[10]**
5	a	What is universal shift register ? Draw the circuit and explain its working.	**[10]**
	b	Explain the 3 bit R-2R D/A converter	**[10]**
6	a	Implement the T to D flip flop and JK to SR	**[10]**
	b	Short on **any two**:	**[10]**
		i) Dual slop A to D converter	
		ii) FPGA	
		iii) Shift Register	
