Exam.Code:0906
Sub. Code: 6238

2014
B.E. (Computer Science and Engineering)
Second Semester
CS-203: Digital Electronics and Logic Design

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.

x-x-x

I	**a**	Differentiate between multiplexer and demultiplexer.
	b	What are the applications of 'D' flip-flop?
	c	List the characteristics of standard TTL and open collector TTL
	d	Give difference between Synchronous and Asynchronous counters.
	e	What are the applications of shift registers? (5 X 2 =10)
		Section A
II	**a**	Design and explain BCD to 7-segment decoder. (5)
	b	What is carry look-ahead adder? Explain with the help of suitable circuit diagram. (5)
III	**a**	Simplify the Boolean expression using K-MAP $Y(A, B,C,D) = \sum m(1,2,3,8,9,10,11,14) + d(7,15)$ (5)
	b	What are universal gates? Implement XOR and OR gates using minimum number of NAND gates only? (5)
IV	**a**	Explain parity generator and checker with circuit diagram. (5)
	b	Explain conversion of Gray to Binary. Design 3 bit Gray to Binary code converter with the help of suitable circuit diagram. (5)
		Section B
V	**a**	Design Full adder circuit using 4:1 multiplexer (two in number only). (5)
	b	Design synchronous counter using T flip-flop to count the following sequence 0,5,6,3,7,4,1

Contd.....P/2

		Avoid lockout condition.	(5)
VI	**a**	Explain J-K flip flop. Why master slave flip flop is used?	(5)
	b	What do you mean by counters. Implement 3 bit up-down asynchronous counter.	(5)
VII		Write a short note on:	
	a	FPGA and its applications.	(5)
	b	State Reduction and State Assignment.	(5)

x-x-x