S.E. EXTC Sem III (CBSJ). 3/12/15

Digital Electronics

QP Code : 5174

(3 Hours) Total Marks: 80

N.B. (1) Question No. 1 is **Compulsory**
(2) Out of remaining questions, attempt **any three**
(3) **Assume** suitable data if required
(4) Figures to the right indicate **full marks**

1. **(a)** Compare SRAM and DRAM [5]
(b) Compare Mealy and Moore machine [5]
(c) Compare TTL and CMOS Logic [5]
(d) Design a full adder using 3:8 decoder [5]

2. **(a)** State and Prove DeMorgan's Laws [10]
(b) Explain carry look ahead adder. What is its advantage over a simple adder [10]

3. **(a)** Design a 4 bit Grey to Binary code converter [10]
(b) Implement the given function using 8:1 Multiplexer [10]
$F(A, B, C, D) = \sum m(0,1,4,5,6,8,10,12,13)$

4. **(a)** Explain the working of Bidirectional Shift register with proper timing diagram [10]
(b) Write a VHDL program to design a 1:8 Demux using Data flow modeling [10]

5. **(a)** Minimize the following expression using Quine McClusky Technique [10]
$F(A,B,C,D) = \sum m(1,2,5,7,9,15) + d(0,3,11)$
(b) Convert D FF to T FF and SR FF to JK FF [10]

6. **(a)** Design synchronous counter to count the sequence 0-1-2-3-4-5-0 [10]
(b) Compare PAL with PLA with suitable examples of logic expressions [10]

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