MANIPAL UNIVERSITY
JAIPUR

SCHOOL OF COMPUTING & IT
Department of IT/ CSE/ CCE
III Semester; First Sessional Examination, Sept. 2016
Course: B.Tech .....
OPEN BOOK EXAMINATION

Subject Code: CS1302 **Subject Name : Switching Theory & Logic Design**
Max. Marks: 20 **Duration : 1 hour**

Instructions:
1. All questions are compulsory
2. Missing data if any can be suitably assumed
3. Numbers in [ ] indicates marks
4. Calculator is not allowed

Q1. Perform the following operations
a) $(4310)_5$ to ($)_{10}$ [1]
b) $(435)_8$ to ($)_{10}$ [1]
c) 65 – 12 : BCD Subtraction using 9's complement. [2]

Q2 a) Show that the dual of the exclusive-OR is equal to its complement. [2]
b) Simplify the following expression using Boolean postulates [2]
(A + C)(AD + AD') + AC + C

Q3. Implement the following Boolean function F, together with the don't care conditions d, using NAND Gates only.
F (A,B,C,D) = ∑ (2,4,10,12,14) [4]
d (A,B,C,D) =∑ (0,1,5,8)

Q4. Using the Quine McClusky method, Obtain the minimum sum of product expression of the following function with the don't care conditions d.
F (A,B,C) = ∑ (0,1,4,5,6) [4]
d (A,B,C) = ∑ (2,3,7)

Q5. Design and Implement the Half Adder circuit using NOR Gates only. [4]