Enrollment no:

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LADRP INSTITUTE OF TECHNOLOGY AND RESEARCH GANDINAGAR
DEPARTMENT OF ELECTRONICS AND COMMUNICATION
B.E. 3RD SEMESTER
MID SEMESTER EXAMINATION AUGUST-2014

Subject Code: EC-304 **Branch: EC**
Subject Name: Digital Logic Design **Total Marks: 30**
Date: 27/08/2014 **Time: 12.00 PM to 1.30 PM**

Instructions:-All questions are compulsory.
-Figures to the right indicate full marks.
-Make suitable assumption, wherever necessary.

Que.1 Answer the followings.

(A) Convert the decimal number 250.5 to base 3, base 8 and base 16. (03)

(B) Implement function F=xyz+x'y+xyz' with only OR and NOT gates. (03)

Que.2 Answer the following questions.

(A) Perform the subtraction of 3570-2100 using 10's complement and 9's complement. (06)

(B) Find out simplified expression of function in sum of products using k-map method. (06)
F= xy'z+xyz'+x'yz+xyz

OR

(A) Perform the subtraction of following binary number using 2's complement and 1's complement. (06)
11010-1101.

(B) Simplify the following Boolean function by means of the tabulation method. (06)
$F(A,B,C,D,E,F,G)=\sum(20,28,38,39,52,60,102,103,127)$

Que.3 Answer the following questions.

(A) Explain full adder circuit with neat diagram. (04)

(B) Write short note on JK flip-flop. (04)

(C) Design a combinational circuit that accepts a three bit number and generates an output binary number equal to the square of the input number. (04)

OR

(A) Implement a full subtractor with two half subtractor and an OR gate. (04)

(B) Write short note on D flip-flop. (04)

(C) Show that NAND and NOR gates are universal gates. (04)