DIGITAL LOGIC DESIGN COE 202

QUIZ-1

Saturday, October 25, 2008

Student Name and ID…………………………………………..

Digital Computer and Information

1. Consider the decimal number **653.861**. Show your steps in carrying out the following conversions. Keep only three fractional digits.

   a. Convert to binary the decimal number $(653.861)_{10}$:
      We have $(653.861)_{10} = (1010001101.110)_2$

   b. Convert to octal the decimal number $(653.861)10$:
      We have $(653.861)_{10} = (1215.670)_8$

   c. Convert to hexadecimal the decimal number $(653.861)_{10}$:
      We have $(653.861)_{10} = (28D.DC6)_{16}$

2. Find the Rs and(R-1)s complements of following numbers:

   a. The binary number $(10111001011011)_2$ has its

      i. 2's complement as
         $(11111111111111)_2 - (10111001011011)_2 +1 = (01000110100101)_2$
      ii. 1's complement as
         $(11111111111111)_2 - (10111001011011)_2 = (01000110100100)_2$

   b. The octal number $(5234)_8$ has its

      i. The 8's complement is $(7777)_8 - (5234)_8 +1 = (2544)_8$
      ii. The 7's complement is $(7777)_8 - (5234)_8 = (2543)_8$
      iii.

   c. The hexadecimal number $(49BC)_{16}$ has

      i. The 16's complement is $(FFFF)_{16} - (49BC)_{16} +1 = (B644)_{16}$
      ii. The 15's complement is $(FFFF)_{16} - (49BC)_{16} = (B643)_{16}$