

Name: KEY

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COE 202, Term 162
Fundamentals of Computer Engineering

Quiz# 1

Date: Thursday, Feb. 16

Q1. Determine the decimal value of the following numbers:

i. $(10010011.101)_2$

$$= 128+16+2+1+1/2+1/8= 147.625$$

ii. $(21.4)_{16}$

$$= 2*16+1+4/16= 33.25$$

Q2. Represent the following numbers in **binary** and **hexadecimal**. Use as many bits as needed, and approximate the fraction to **4 binary digits**:

i. $(240.8)_{10}$

Binary: 11110000.1100

Hexadecimal: F0.C

ii. $(170.7)_8$

Binary: 001111000.111

Hexadecimal: 78.E

Q3. Perform the following arithmetic operations:

i. $(11101110)_2 + (10110111)_2$

$$= (110100101)_2$$

ii. $(D3)_{16} - (AF)_{16}$

$= (24)_{16}$

Q4. Determine, in **binary, hexadecimal** and **decimal**, the *largest* number that can be stored in an **8-bit** register.

	Largest
Binary	11111111
Hexadecimal	FF
Decimal	255

Q5. Assuming that an 8-bit register contains the hexadecimal value C5 representing a character, determine the character stored and type of parity used (i.e. even or odd parity). Note that the ASCII code of character 'A' is 41h and the ASCII code of character 'a' is 61h.

The character stored is 'E' and the parity is even since the number of 1's is even.