

# Discrete Structures TR11 – Number Systems Quiz

Name and ID: .....

1. Write the decimal number  $(40)_{10}$  in its binary (base-2) and its ternary (base-3) representations.

2. Write the twelve decimal numbers  $(1)_{10}, (2)_{10}, \dots, (12)_{10}$  in their base-6 representation.

3. Which number is larger  $(212)_4$  or  $(100110)_2$ ?

4. In the base-14 system:  $A = 10$ ,  $B = 11$ ,  $C = 12$ , and  $D = 13$ . What is the decimal value of the number  $(BAD)_{14}$ ?

5. Characterize **all** the base-2 numbers that are multiples of 2 (those numbers that are divisible by 2)?

6. What happens to a base-3 number when a 1 is added after the last (least significant) digit?  
Examples: 220 becomes 2201 and 1212 becomes 12121.