Quiz #1

1:00 pm, Monday, April 10th

ALL QUESTIONS ARE MULTIPLE CHOICE:

1. What is the decimal equivalent of the unsigned base 5 number 324_5?

   a. 88_{10}
   b. 89_{10}
   c. 2244_{10}
   d. None of the above

$$324_5 = 3\times5^2 + 2\times5^1 + 4\times5^0$$
$$= 3\times25 + 2\times5 + 4\times1$$
$$= 75 + 10 + 4$$
$$= 89_{10}$$

2. What is the base 7 equivalent of the unsigned decimal number 104_{10}?

   a. 53_7
   b. 206_7
   c. 602_7
   d. None of the above

$$104\div7: \quad Q=14, \; R=6 \quad \rightarrow \quad 2$$
$$14\div7: \quad Q=2, \; R=0 \quad \rightarrow \quad 06$$
$$2\div7: \quad Q=0, \; R=2 \quad \rightarrow \quad 206$$

3. What is the base 4 equivalent of the unsigned decimal number 0.6875_{10}?

   a. 0.23_4
   b. 0.30_4
   c. 0.32_4
   d. None of the above

$$4\times.6875 = 2.75 \quad \rightarrow \quad .2$$
$$4\times.75 = 3.0 \quad \rightarrow \quad .23$$

4. What is the base 9 equivalent of the unsigned base 3 number 21012_3?

   a. 235_9
   b. 236_9
   c. 704_9
   d. None of the above

$$21012_3 \quad \rightarrow \quad 2 \; 10 \; 12_3$$
$$02 \; 10 \; 12_3$$
$$2 \; 3 \; 5_9$$

Base 9	Base 3
0	00
1	01
2	02
3	10
4	11
5	12
6	20
7	21
8	22

5. What is the result of applying the 2's complement algorithm to 0111.1110_2.

   a. 1000.0010_2
   b. 1000.1110_2
   c. 1001.0001_2
   d. None of the above

$$0111.1110 \quad \rightarrow \quad 1000.0001$$
$$+0000.0001$$
$$1000.0010$$