DISCRETE MATH
QUIZ 12

Name:_____

You have 10 minutes for this exam. If you have a question, raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**.

1.

(a) What is the formula for the number of k-element multisets that can be formed from an n-element set?

$$\left(\!\!\binom{n}{k}\!\!\right) = \binom{n+k-1}{k} = \frac{(n+k-1)!}{k!(n-1)!}$$

(b) Write down all 3-element multisets that can be formed from $\{a, b, c\}$.

$\{a, a, a\}, \{a, a, b\}, \{a, b, b\}, \{b, b, b\}, \{a, a, c\}, \{a, c, c\}, \{c, c, c\}, \{b, b, c\}, \{b, c, c\}, \{a, b, c\}$

2. What is the number of positive integral solutions to $x_1 + x_2 + x_3 + x_4 = 50$?

$$\left(\!\!\binom{4}{46}\!\!\right) = \frac{49!}{3!46!}$$