

Quiz 4 for Statistics 213
Probability and Decision Theory - Spring 2000
Material Covered: Sections 6.1, 6.2, 6.3 and 6.4 of Workbook and text
For: 10th March

This is a 15 minute quiz, worth 6% and marked out of 6 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an $8\frac{1}{2}$ by 11 inch piece of paper may be used as a reference during this quiz. A calculator and appropriate statistical tables may also be used. No other aids are permitted.

Name (please print): _____ . ID Number: _____
last first

1. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 3, 5, 7, 9\}$, $B = \{2, 4, 5\}$ and $C = \{1, 3, 5, 7, 10\}$.

(a) [1] $A \cap C^c =$ _____.

(b) [1] $n(B^c \cup C) =$ _____.

2. Consider the following questions on the multiplication rule, permutations and combinations.

(a) [1] If repetitions of the same four digits are *not* allowed (such as 5555), how many possible 4-digit codes are there for ATM cards? _____.

(b) [1] **order matters / order does not matter** and **sampling with replacement / sampling without replacement** when trying to determine how many possible 4-digit codes are there for ATM cards.

(c) [1] How many different batting orders can be formed for a 9-member baseball team? _____.

(d) [1] How many *combinations* of 3 letters can be formed from the letters in *PUNC*? _____.

1.

(a) [1] {9}

(b) [1] 8; since {1, 3, 5, 6, 7, 8, 9, 10}

2. Consider the following questions on the multiplication rule, permutations and combinations.

(a) [1] $10^4 - 109990$

(b) [1] **order matters; sampling with replacement.**

(c) [1] $9! = 362880$

(d) [1] $C(4, 3) = 4$