Quiz 4 for Statistics 213
Probability and Decision Theory - Spring 2002
Material Covered: Sections 6.1, 6.2, 6.3 and 6.4 of Workbook and text
Friday, 8th March

This is a 15 minute quiz, worth 5% and marked out of 5 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. [2 points] Let $A = \{a, b, c, d, e, f\}$, $B = \{b, d, e, h\}$, $C = \{a, e\}$ and the universal set is $U = \{a, b, c, d, e, f, g, h, i, j\}$.

(a) $n(A \cup B) =$ _____

(b) $A \cup C^c =$ _____

2. [3 points] A number of cards are dealt from a deck of 52 playing cards.

(a) How many ways are there of dealing three (3) red cards and two (2) black cards? (circle one)
$\boldsymbol{P(26,3) \times P(26,2)}$
$\boldsymbol{P(26,3) \times C(26,2)}$
$\boldsymbol{C(26,3) \times P(26,2)}$
$\boldsymbol{C(26,3) \times C(26,2)}$
none of these

(b) How many ways are there of dealing three (3) kings, two (2) queens and one (1) jack? (circle one)
$\frac{4!}{1!1!} \cdot \frac{4!}{2!2!} \cdot \frac{4!}{1!3!}$ / $\frac{4!}{2!1!} \cdot \frac{4!}{2!2!} \cdot \frac{4!}{1!3!}$ / $\frac{4!}{2!2!} \cdot \frac{4!}{2!2!} \cdot \frac{4!}{1!3!}$ / $\frac{4!}{3!1!} \cdot \frac{4!}{2!2!} \cdot \frac{4!}{1!3!}$ / $\frac{4!}{3!2!} \cdot \frac{4!}{2!2!} \cdot \frac{4!}{1!3!}$

(c) How many ways are there of dealing four (4) cards of one rank, and one (1) other card (for example, four kings and an ace)?
(circle closest one) **624** / **698** / **734** / **788** / **818**

1.

(a) $n(A \cup B) = 7$ since $\{a, b, c, d, e, f, g, h\}$

(b) $A \cup C^c = \{a, b, c, d, e, f, g, h, i, j\}$

2. [3 points] A number of cards are dealt from a deck of 52 playing cards.

(a) $\boldsymbol{C(26, 3) \times C(26, 2)}$

(b) $\frac{\mathbf{4!}}{\mathbf{3!1!}} \cdot \frac{\mathbf{4!}}{\mathbf{2!2!}} \cdot \frac{\mathbf{4!}}{\mathbf{1!3!}}$

(c) **624**

four cards of one rank, from the 13 ranks, $\times$ the remaining 48 other cards