

STAT 251 Statistical Inference for Management I Winter 2012

Quiz 11

Taken on Wed Feb 1. You may work with a group of as many as 4 students, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes.

For questions #1–3, you will determine the probability that in a group of 5 people, at least two share the same birth *month*. Assume that all 12 months are equally likely to be someone's birth month.

- 1) First determine the denominator: How many choices are there for the birth months of these 5 people (without any restrictions)?
- 2) Next determine the numerator for the complement: How many choices are there for the 5 people to have all different birth months?
- 3) Report the probability that in a group of 5 people, at least two share the same birth month.

For questions #4–5, suppose that a manager must choose 3 employees to be laid off from among the 12 employees that she supervises. Also suppose that these 12 employees include 4 employees who are over age 50 and 8 employees who are age 50 or younger.

- 4) First determine the denominator: How many different choices of 3 employees are available for the manager to lay off?
- 5) If the decision about which employees to lay off is made completely without regard to age (i.e., at random with regard to age), what is the probability that all 3 of the employees selected would be over age 50?