

King Fahd University of Petroleum & Minerals  
Department of Mathematics & Statistics  
STAT-211-Term162

## Quiz #3

Name:

ID:

Serial:

Q1: Provide a reasonable description of the sample space for each of the following.

- a. The following two questions appear on an employee survey questionnaire. Each question is chosen from five – point scale 1 (never), 2, 3, 4, 5 (always).
  1. Is the corporation willing to listen to and fairly evaluate new ideas?
  2. How often are my coworkers important in my overall job performance?
  
- b. Each of three machined parts is classified as either above or below the target specification for the part. Let a and b denote a part above and below the specification, respectively.

Q2: Suppose that  $P(A \cap \bar{B}) = 0.3$ ,  $P(\overline{A \cup B}) = 0.2$  and  $P(A \cap B) = 0.1$ , find  $P(A | B)$

**Q3:** A manufacturer of front lights for automobiles tests lamps under a high-humidity, high-temperature environment using intensity and useful life as the responses of interest. The following table shows the performance of 170 lamps:

<i>Intensity</i>	<i>Useful life</i>	
	Satisfactory	Unsatisfactory
Satisfactory	143	8
Unsatisfactory	12	7

- a. Find the probability that a randomly selected lamp will yield unsatisfactory results under any criteria.
- b. The customers for these lamps demand 95% satisfactory results. Can the lamp manufacturer meet this demand?