KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS AND STATISTICS
Term 152

STAT 211 BUSINESS STATISTICS I

Wednesday March 23, 2016

Serial number

Please circle your instructor name:

W. Al- Sabah M. Saleh

Name: _____ ID #:_____

Important Note:

- Show all your work including formulas, intermediate steps and final answer

Question No	Full Marks	Marks Obtained
1	6	
2	7	
3	3	
4	4	
Total	20	

Q1: (2 points each)

a. The probability that a person will make 0, 1, 2, 3, 4 calls in a day are 0.12, 0.15, 0.13, 0.4, 0.2 respectively, find the probability that a person will make less than two calls in a day.

b. A used car lot has 15 cars. Five of these cars were manufactured in the U.S. and the remainder were made in other countries. If three cars are purchased, what is the probability that all three will be U. S. made cars?

c. An inspector checks 4 parts each hour to determine whether each is defective. It has been determined that the probability of 3 or fewer of the parts being defective is 0.85, what is the chances that all four parts will be defective.

Q2: An instructor has been teaching statistics for over 20 years. From his experience he knows that 60% of his students do homework regularly. Moreover, 95% of the students who do their homework regularly pass the course, he also knows that 85% of his students passes the course

a. (*2 pts.*) What is the probability that a student will do homework regularly and pass the course?

b. (*2 pts.*) What is the probability that a student will neither do homework nor will pass the course?

c. (*2 pts.*) Are the events "pass the course" and "do homework regularly" mutually exclusive? Explain.

d. (1 *pt.*) Are the events "pass the course" and "do homework regularly" independent? Explain

Q3: (*3 pts.*) The probability that a trainee will remain with a company is 0.6. The probability that an employee earns more than SR10,000 per month is 0.5. The probability that an employee who is a trainee remained with the company or who earns more than SR10,000 per month is 0.7. What is the probability that an employee earns more than SR10,000 per month given that he is a trainee who stayed with the company?

Q4: (4 *pts.*) An internal auditor is auditing three departments X, Y, and Z, in his company. The number of procedures in departments X, Y, and Z are respectively in the ratio 1 to 2 to 3. It is known that the percentages of non-compliance in departments X, Y, and Z are 2%, 7%, and 12% respectively. If the auditor finds one non-compliance, what is the probability that this procedure came from department Y?

Some Useful Formulas

- $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
- $P(A \cap \bar{B}) = P(A) - P(A \cap B)$
- $P(\bar{A} \cap \bar{B}) = 1 - P(A \cup B)$
- $P(A|B) = \frac{P(A \cap B)}{P(B)}, \quad P(B) > 0$
- $P(A \cap B) = P(B)P(A|B) = P(A)P(B|A)$