MUEO

MOI UNIVERSITY

OFFICE OF THE CHIEF ACADEMIC OFFICER

UNIVERSITY EXAMINATIONS
2010/2011 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER EXAMINATION

FOR THE DEGREE OF

BACHELOR OF BUSINESS MANAGEMENT

COURSE CODE: BBM 350

COURSE TITLE: MANAGERIAL STATISTICS

DATE: 19TH NOVEMBER, 2010   **TIME:** 9.00 A.M. – 12.00 NOON

INSTRUCTION TO CANDIDATES

- SEE INSIDE.

BBM 350: MANAGERIAL STATISTICS
INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER THREE QUESTIONS

QUESTION ONE
a) Write short notes on the following: (5 marks each)
    i) Central limit theorem
    ii) Properties of student distribution
b) Differentiate between the following terms: (5 marks each)
    i) Point and interval estimators
    ii) Type I and Type II Errors
    iii) One-tailed and two –tailed tests

QUESTION TWO
a) Explain the relation between a multinomial and a binomial experiment? (3 marks)
b) To carry out a successful product campaign, a sales team requires more than 3 sunny days (although not necessarily consecutive days). Eldoret sales team has only one week left to get the job finished. Given that the probability of any day being sunny is 0.8, calculate the probability that they will be able to have successful product campaign in the remaining one week.   (8 marks)
c) A company has 20 employees in the marketing department, 30 in Accounting, and 25 in Human Resource. In line with a new Equal opportunity policy, four employees are chosen randomly to represent the company in a business forum to be held in China. What is the probability that 2 will be marketers, one accountant and one from human resource department   (4 marks)

QUESTION THREE
a) A business trainer believed employees going through her training are able to increase their performance by reducing the proportion of rejected items out of the total production. The training was offered to employees of Kampala branch in February 2010. Given that in January 2010 out of 500 units produced 60 were rejected while in March 2010 out of 800 units produced 80 were rejected. Test the appropriate hypothesis at the 5% level.   (8 marks)

b) A home owner claims that the current market value of his house is at least Kshs. 4 millions. Twelve real estate agents were asked independently to estimate the house's value and mean estimate was found to be Kshs. 3.75 millions with a standard deviation of Kshs. 750,000. Test a hypothesis that the market value is below the home owners claim at 5% level of significance (7 marks)

QUESTION FOUR
a) Explain the applications of Chi-Square Tests (4 marks)
b) Two market researchers adopted different sampling techniques while investigating the same group of customers for their opinion on the performance of a certain laptop brand. The customers rated the performance into four groups. The results are as shown below. Are the sampling techniques adopted significantly different at 5% level of significance

Researcher	Excellent	Good	Fair	Poor	Total
Mary	325	597	216	52	1,190
John	1,527	1,712	304	96	3,639
Total	1,852	2,309	520	148	4,829

(11 marks)

QUESTION FIVE

a) Explain the properties of a good estimator   (6 marks)

b) Differentiate between correlation analysis and chi-square test of independence (3 marks)

c) A random sample of 50 consumer accounts at a large brokerage firm is selected for the purpose of estimating the mean number of transactions per year for each customer. The sample mean was found to be 20 with standard deviation of 6. Determine 99% confidence for the mean number of transactions of all consumer accounts of the firm given that the standard deviation over years has been 15 transactions and number of transactions per a customer is normally distributed. (6 marks)

QUESTION SIX

a) Properties of a binomial distribution   (5 marks)

b) Akinyi runs a grocery store in Kenyatta market, Nairobi. She is worried of overstocking strawberries as this affects her working capital adversely. The cost of each box is Kshs. 300, selling price is Kshs. 500 (i.e., profit on sold unit = Kshs. 200), and salvage value on unsold box is Kshs. 150 (i.e., loss on unsold unit = Kshs. 150). If she can stock 0, 1, 2, or 3 units. The following probability distribution of daily demand for strawberries is given:

Daily Demand	0	1	2	3
Probability	0.2	0.3	0.3	0.2

Assume that units from one day cannot be sold the next day, find the optimal stock level to give maximum expected profit.

(10 marks)