MUEO

MOI UNIVERSITY

OFFICE OF THE DEPUTY VICE CHANCELLOR, ACADEMIC AFFAIRS, RESEARCH & EXTENSION

UNIVERSITY EXAMINATIONS
2016/2017 ACADEMIC YEAR

END OF SEMESTER I EXAMINATIONS

MASTER OF BUSINESS ADMINISTRATION

EXAM CODE:- **MBA 804**

COURSE TITLE:- **QUANTITATIVE TECHNIQUES FOR MANAGEMENT**

DATE:- 25TH FEBRUARY, 2017   **TIME:- 9.00A.M. – 12.00NOON.**

INSTRUCTION TO CANDIDATES
   ➢ SEE INSIDE.
THIS PAPER CONSISTS OF (2) PRINTED PAGES   PLEASE TURN OVER

MBA 804: QUANTITATIVE TECHNIQUES FOR MANAGEMENT

Instructions: Answer Question One and any other Four Questions

QUESTION ONE

a) Discuss the importance of the concept of probability in business **(3 Marks)**
b) Explain the assumptions of linear multiple regression analysis **(3 Marks)**
c) Elucidate the assumptions of chi-square **(3 Marks)**
d) Is a correlation coefficient of 0.55 significant if obtained from a random sample of 9 pairs of values from a normal population? (Use t-table below)

(4 Marks)

e) A binomial distribution has n=20 and p=0.3. Find the mean and the variance of this distribution. **(4 Marks)**
f) Find the probability that atmost 5 defective bolts will be found in a box of 200 bolts if it is known that 2% of such bolts are expected to be defective. Take $e^{-4}= 0.0183$ **(5 Marks)**
g) The life time of electric bulbs for a random sample of 10 from a large consignment gave the following data

Item	1	2	3	4	5	6	7	8	9	10
Life in '000 hours	4.2	4.6	3.9	4.1	5.2	3.8	3.9	4.3	4.4	5.6

At 5% significance level, can we reject the hypothesis that the average life of bulbs is 4000 hours? Develop the limits within which the population means lies. **(8 Marks)**

Use the following values of t

d.f	7	8	9	10
t.025	2.365	2.306	2.262	2.228
t.05	1.895	1.860	1.833	1.812

h) Find the multiple regression equation of Y on X_1 and X_2 from the data relating to three variables given below:

Y	8	12	14	18	26	30
X_1	30	24	16	12	8	6
X_2	60	48	40	28	20	8

(10 Marks)

QUESTION TWO

a) Briefly describe the procedures of testing hypothesis. **(5 Marks)**

b) A multiple-choice test consists of 8 questions with 3 answers to each question (of which one is correct). A student answers each question by rolling a balanced dice and checking the first answer if he gets 1 or 2, the second answer if he gets 3 or 4 and the third answer if he gets 5 or 6. To get a distinction, the student, the student must secure at least 75% correct answers. If there is no negative marking, what is the probability that the student secures distinction? **(10 Marks)**

QUESTION THREE

a) Discuss the limitation of tests of significance.**(5 Marks)**

c) A company is interviewed in finding out if there is any difference in the average salary received by managers of two divisions. According samples of 12 managers in the first division and 10 managers in the second division were selected at random.

The results are given below.

	1st Division	2nd Division
Sample Size	12	10
Average monthly salary	12,500	11,200
Standard deviation	320	480

Apply test to find out whether there is a significance difference in the average salary.

(10 Marks)

QUESTION FOUR

a) Discuss the merits and demerits of probabilistic sampling design in research?(5 Marks)

b) The marks of vthe students are normally distributed. 10% get more than 75 marks and 20% get less than 40 marks. Find the mean and the standard deviation of the distribution. The relevant extract of area table (under the normal curve) is given below:

Z	0.84	1.28	2.0
Area	0.2995	0.3997	0.4772

(10 Marks)

QUESTION FIVE

a) Discuss the uses of chi-square test in analysis. (5 Marks)

b)   A milk producers' union wishes to test whether the preferences pattern of consumers for its products is dependent on income levels. A random sample of 500 individuals gives the following data; (complete the table)

Income	Product A	Product B	Product C	Total
Low	170		80	280
Medium	50	25		135
High	20			85
Total	240	65	195	500

Use chi-square test values given below at 5% significance level.

Df	1	2	3	4	5
Chi-square	3.84	5.991	7.815	9.49	11.1

QUESTION SIX

a)Clearly highlight the assumption in analysis of variance(5 Marks)

b) The following table gives the monthly sales (in thousands of shillings) of a certain firm in randomly selected three cities:

City   salesmen

	I	II	III	IV
A	20	19	23	16
B	19	17	21	18
C	24	26	29	26

Set up ANOVA table for the given information and draw the inference about variance at 5% level of significance regarding i) the difference between sales by the firm salesmen, and ii) sales in the three cities.(10 Marks)