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MOI UNIVERSITY

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

UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

END OF SEMESTER I EXAMINATIONS

FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

EXAM CODE:- **MBA 860**

COURSE TITLE:- **QUANTITATIVE METHOD OF MANAGEMENT**

DATE:-9TH FEBRUARY, 2015 **TIME:- 9.00A.M. – 12.00NOON.**

INSTRUCTION TO CANDIDATES

- SEE INSIDE.

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MOI UNIVERSITY

FIRST YEAR, FIRST SEMESTER, 2014/2015 EXAMINATION FOR MASTER OF BUSINESS ADMINISTRATION

COURSE CODE: **MBA 860**

COURSE TITLE: **QUANTITATIVE METHOD OF MANAGEMENT**

TIME: 3 HOURS

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER THREE QUESTIONS

QUESTION ONE

a) As a head of a department of a consumer research organization you have the responsibility for testing and comparing the lifetimes of four brands of electric bulbs. Suppose you test the lifetime of three electric bulbs of each of four brands. The data is shown below, each entry representing the lifetime of an electric bulb, measured in hundreds of hours;

A	B	C	D
20	25	24	23
19	23	20	20
21	21	22	20

Can we conclude that the mean lifetime of the four brands of electric brands are equal? **[8 marks]**

b) How many employees have a salary between $400 and $650, if the arithmetic mean is $500, standard deviation is $100 and the number of employees is 15,000 assuming that the salary of employees follows a normal distribution? **[4 marks]**

c) Four names are drawn from 24 members of a private country club for the office of president, vice president, treasurer and secretary. In how many ways can this be done? **[4 marks]**

d) The average number of airplanes arriving on a day at an airport in a certain city is known to be 12. Assuming a poisson distribution, what is the probability that on a given day fewer than 9 airplanes will arrive at the airport? **[4 marks]**

e) What is the probability of obtaining a sum of 9 when two dice are thrown? **[1 mark]**

QUESTION TWO

a) Ten contestants in a beauty contest were ranked by three judges as follows;

Judge I	1	5	4	8	9	6	10	7	3	2
Judge II	4	8	7	6	5	9	10	3	2	1
Judge III	6	7	8	1	5	10	9	2	3	4

Use rank correlation coefficient to establish which pair of judges had the nearest approach to common tastes in beauty. **[8 marks]**

b) In 16 one-hour test runs, a car hire company manager found that the petrol consumption of an engine averaged 16.4 litres with a standard deviation of 2.1 litres. Test the claim that the average consumption of this engine is 12 litres per hour. **[5 marks]**

QUESTION THREE

a) A restaurant manager classifies customers as well dressed, moderately dressed or poorly dressed and finds that of all customers 60%, 30% and 10% fall into these categories respectively. The manager found out that wine was ordered by 70% of well-dressed customers, by 50% of moderately dressed and 30% of poorly dressed.

i) What is the probability that a randomly chosen customer orders wine? **[2 marks]**

ii) If wine is ordered, what is the probability that the person ordering is well dressed? **[2 marks]**

iii) If wine is ordered, what is the probability that the person ordering is moderately dressed? **[2 marks]**

iv) If wine is ordered, what is the probability that the person ordering is poorly dressed? **[2 marks]**

b) Differentiate between the following concepts;

a) Statistic and parameter
b) Critical region and acceptance region
c) Null and alternative hypotheses
d) One tailed and two tailed tests
e) Type I and Type II errors **[5 marks]**

QUESTION FOUR

a) A certain soup is claimed to be effective in curing colds. In an experiment with 328 people with cold, half were given the soup and half were not. The patients' reactions to the soup are recorded in the table below;

	Helped	Harmed	No effect
Soup	104	20	20
No soup	88	24	52

Test the hypothesis that the soup is not effective in curing the cold. **[8 marks]**

b) Define the following terms;

i] Probability
ii] Independent events
iii] Correlation
iv] Regression

v] Mutually exclusive events **[5 marks]**

QUESTION FIVE

a) Differentiate;

i) Simple and multiple correlation

ii) Linear and non-linear correlation

iii) Positive and negative correlation

iv) Parametric and non-parametric tests

v) Poisson and normal distribution **[5 marks]**

b) Given the data below;

Economics marks (X)	25	28	25	32	31	36	29	38	34	32
Statistic marks (Y)	43	46	49	41	36	32	31	30	33	39

Find;

i) The two lines of regression

ii) Coefficient of correlation between marks in economics and statistics

iii) The most likely marks in economics when marks in statistics is 30. **[8 marks]**