



## GARISSA UNIVERSITY

UNIVERSITY EXAMINATION 2017/2018 ACADEMIC YEAR **ONE**  
**SECOND** SEMESTER EXAMINATION

SCHOOL OF BUSINESS AND ECONOMICS

FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

COURSE CODE: MBA 804

COURSE TITLE: QUANTITATIVE METHODS OF MANAGEMENT

EXAMINATION DURATION: 3 HOURS

**DATE: 19/04/18**

**TIME: 09.00-12.00 PM**

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### INSTRUCTION TO CANDIDATES

- The examination has FIVE (5) questions
- Question ONE (1) is COMPULSORY
- Choose any other THREE (3) questions from the remaining FOUR (4) questions
- Use sketch diagrams to illustrate your answer whenever necessary
- Do not carry mobile phones or any other written materials in examination room
- Do not write on this paper

This paper consists of THREE (3) printed pages

*please turn over*



**QUESTION ONE (COMPULSORY)**

- (a) Briefly explain the properties of Anova **[3 marks]**
- (b) Discuss the assumptions of linear programming problem **[4 marks]**
- (c) Discuss the properties of a good estimator **[4 marks]**
- (d) The mean lifetime of a sample of 100 light tubes produced by a company is found to be 1570 hours with standard deviation of 80 hrs. Test the hypothesis that the mean lifetime of the tubes produced by the company is 1,600 hrs. **[8 marks]**
- (e) An investor is faced with the choice between two investment projects P and Q. The two projects have the following data.

Project	Initial Outlay	Return Five Years From Now shillings
P	2000	2500
Q	60000	72000

Which of the two projects would interest rate of 3.5 % compounded annually, Apply the following methods.

- i. NPV **[3 marks]**
- ii. IRR **[3 marks]**

**QUESTION TWO**

Using simplex method, solve the following problem.

$$\text{Maximize } Z = 14x + 12y$$

$$\text{Sub to: } 3x + 2y \leq 8$$

$$2x + 4y \leq 8$$

$$\text{And } x \geq 0, y \geq 0$$

**[15 marks]**



**QUESTION THREE**

(a) Discuss the assumptions of linear regression **[9 marks]**

(b) Using the information given, calculate F value and comment. **[6 marks]**

Route	Mean Time (min)	Standard deviation	Sample Size
U.S. 25	56	12	7
I-75	58	5	8

**QUESTION FOUR**

(a) Output of a production process is known to be thirty percent defective. What is the probability that a sample of 5 items would contain 0, 1, 2, 3, 4, and 5 defectives **[10 marks]**

(b) Make notes on the following

i. Acceptance and rejection region **[2 marks]**

ii. Type I and Type II Errors **[2 marks]**

iii. The significance level **[1 mark]**

**QUESTION FIVE**

(a) A car manufacturer has recently held 3-day road side exhibits on the introduction of a new model of its deluxe cars. The number of sales personnel employed at each of a sample of 10 exhibitions and the number of cars booked at each one are given below;

No. of Salesmen:	5	8	6	8	9	3	5	6	6
No. of Cars Booked:	132	160	148	156	168	102	142	98	142

Using these data, regress the number of cars booked on the number of salesmen, and obtain the regression equation. Show the original data and the regression line on graph. Estimate the number of cars booked if 10 salesmen are employed on an exhibition **[15 marks]**

