



GARISSA UNIVERSITY

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

SCHOOL OF BUSINESS AND ECONOMICS

FOR THE DEGREE OF BACHELOR OF BUSINESS MANAGEMENT

COURSE CODE: IRD 104

COURSE TITLE: QUANTITATIVE SKILLS

EXAMINATION DURATION: 3 HOURS

DATE: 17/04/18

TIME: 09.00-12.00 PM

INSTRUCTION TO CANDIDATES

- The examination has **SIX (6)** questions
- Question **ONE (1)** is **COMPULSORY**
- Choose any other **THREE (3)** questions from the remaining **FIVE (5)** 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 **FOUR (4)** printed pages

please turn over



QUESTION ONE (COMPULSORY)

- (a) Using diagram, illustrate the following:
 - i. Positively skewed distribution **[2 marks]**
 - ii. Normal distribution **[1 mark]**
- (b) The following shows lengths in centimeters of plants in a certain study: 13.5, 14.5, 14.8, 15.2 and 16.1. Calculate the geometric mean of the data. **[3 marks]**
- (c) Clearly explain four qualities of a good measure of central tendency. **[6 marks]**
- (d) City residents were surveyed recently to determine readership of newspapers available. 50% of the residents read the morning papers, 60% read the evening papers and 20% read both news papers. Find the probability that a resident selected reads either the morning or evening paper or both the papers. **[4 marks]**
- (e) Discuss two limitations of classical approach to probability. **[4 marks]**
- (f) In a certain town, male and female form 50% of the population It is known that 20% of the males and 5% of the females are unemployed. The following table gives the probability of this situation.

Unemployment data

	Unemployed	Employed	Total
Males	0.10	0.40	0.50
Females	0.025	0.475	0.50
Total	0.125	0.875	1.00

A research student studying the employment situation, selects an unemployed person at random. Compute that the probability that the person so selected is:

- i. Male **[3 marks]**
- ii. Female **[2 marks]**

QUESTION TWO

- (a) Distinguish between dependents events and complementary events as used in probability **[3 marks]**
- (b) Two factories manufacture the same machine parts. Each part is classified as having either 0,1,2, or 3 manufacturing defects. The joint probability distribution for this is given below



Number of defects

	0	1	2	3
Manufacturer A	0.125	0.0625	0.1875	0.125
Manufacturer B	0.0625	0.0625	0.125	0.25

- i. A part is observed to have no defects. Determine the conditional probability that it was produced by manufacturer A **[3 marks]**
- ii. A part is known to have been produced by manufacturer A. Find the conditional probability that the part has no defects. **[3 marks]**
- iii. A part is known to have two or more defects, calculate the conditional probability that it was
 - I. Manufactured by A **[3 marks]**
 - II. Manufactured by B **[3 marks]**

QUESTION THREE

The weight of fifty pieces of iron rods was tabulated as shown in the following table

Weight	0-10	10-20	20-30	30-40	40-50
frequency	8	12	20	6	4

From the table, compute the:

- (a) Middle weight **[3 marks]**
- (b) Upper quartile **[3 marks]**
- (c) Lower quartile **[3 marks]**
- (d) 7th Decile **[3 marks]**
- (e) 68th percentile of the data **[3 marks]**



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QUESTION FOUR

- (a) Explains three reasons why a researcher may prefer to use weighted mean as a way of computing mean of a data. **[6 marks]**
 (b) The following tables shows marks scored by first year of a certain college in a test

Marks	30	40	50	60	70	80	90
	-	-	-	-	-	-	-
	39	49	59	69	79	89	99
No of students	2	3	11	20	32	25	7

Use the information in the table to calculate;

- i. Harmonic mean **[3 marks]**
 ii. Arithmetic means **[3 marks]**
 (c) Elias gets quiz grades of 79, 82, and 69. He gets a 65 on his final exam. Find the weighted mean if each quiz count for 10% and the final exam counts for 70% of the final grade. **[3 marks]**

QUESTION FIVE

- (a) Highlight the meaning of the terms:
 i. Range **[1 mark]**
 ii. Outliers **[1 mark]**
 (b) The following data shows the masses of pigs in a certain farm

Mass kg	11-20	21-30	31-40	41-50	51-60	61-60	71-80	81-90	91-100	101-110
No. of pigs	1	7	8	11	19	10	7	5	4	3

From the table;

- i. Prepare a frequency distribution table **[3 marks]**
 ii. Compute;
 i. Mean mass **[2 marks]**
 ii. Mean absolute deviation **[3 marks]**
 iii. Variance **[3 marks]**
 iv. Standard deviation **[3 marks]**

QUESTION SIX

- (a) Differentiate between universal set and disjoint set. **[3 marks]**
 (b) Give the meaning of dependant variable **[2 marks]**
 (c) Explain two main characteristics of standard deviation **[4 marks]**
 (d) Clearly explain the content of axiomatic approach of probability **[3 marks]**
 (e) Discuss the limitations of use of arithmetic mean in statistics **[3 marks]**

