



**NNAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF NATURAL RESOURCES AND SPATIAL SCIENCES

DEPARTMENT OF ARCHITECTURE AND SPATIAL PLANNING

QUALIFICATION:	BACHELOR OF REGIONAL AND RURAL DEVELOPMENT		
QUALIFICATION CODE:	07BRRD	LEVEL:	5
COURSE CODE:	SRP520S	COURSE NAME:	STATISTICS FOR REGIONAL PLANNERS
SESSION:	JANUARY 2020	PAPER:	THEORY
DURATION:	3 HOURS	MARKS:	100

SECOND / SUPPLEMENTARY OPPORTUNITY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions.2. Write clearly and neatly.3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Calculator

THIS QUESTION PAPER CONSISTS OF 6 PAGES (Including this front page)

Question 1

Probability models can greatly help in optimising policies an making safe decisions.

- (a) Explain probability, stating the formula that we use to calculate probability. (4)
- (b) Briefly distinguish between the two types of variables relevant to calculating probability. Give an example of each. (6)

[10]

Question 2

- (a) Measures of dispersion such as standard deviation use one value to describe the extent of spread between the data points and the average. Calculate the sample standard deviation of improvised housing in Namibia, using the data in Table 1 below. Please show all calculation steps including formulas, and round off all your answers to two decimal points. (20)

Table 1: Percentage Distribution of Improved Housing in Namibia

Region	Improved Housing Unit (%)
!Kharas	25.20
Erongo	43.60
Hardap	52.80
Kavango East	46.70
Kavango West	13.70
Khomas	42.30
Kunene	22.60
Ohangwena	4.80
Omaheke	34.30
Omusati	3.00
Oshana	13.20
Oshikoto	10.50
Otjozondjupa	30.30
Zambezi	2.70

Namibia Statistics Agency (NSA), 2017

- (b) The Median is one of the common Measures of Central Tendency. Find the Median using the data in Table 2 on the next page. Please show all the steps and do not round off the answer. (10)

Table 2: Percent Distribution of Households with No Toilet Facility in Namibia

Region	Households with No Toilet Facility (%)
!Kharas	25.1
Erongo	12.9
Hardap	44.0
Kavango East	63.0
Kavango West	84.5
Khomas	25.2
Kunene	64.5
Ohangwena	72.1
Omaheke	56.1
Omusati	71.0
Oshana	27.2
Oshikoto	56.8
Otjozondjupa	39.2
Zambezi	82.1

Namibia Statistics Agency (NSA), 2017

- (c) The Mode is the value with the most frequent occurrence. Explain briefly, in two sentences, why the Mode can be a complicated measure. (2)

[32]

Question 3

- (a) Application of professional ethics to regional planning statistical projections has proved difficult or impossible. Explain briefly, in four sentences, why it is difficult to investigate ethical issues in regional planning statistical projections. (4)
- (b) Statistical data is sometimes subject to ethical issues, error and uncertainty. Discuss, in seven sentences, how ethical challenges in statistics can be resolved. (7)

[11]

Question 4

- (a) In accordance with Figure 1 below, development in Windhoek went through a number of Cyclical Variation stages, particularly demonstrated by the number of building plans approved by the City of Windhoek since 2000. Based on Figure 1, please indicate the Cyclical Variation stages represented by letters “A” to “D” that the City of Windhoek went through. Please do not indicate the stages on the actual graph on the question paper. Instead, please write in your answer book (script) which stage is depicted by each letter. (4)



Figure 1: Number of Building Plans Approved in Windhoek
 Source: IJG, 2018

- (b) Time series are a set of observations measured sequentially through time. Outline the four objectives of the time series. (4)

[8]

Question 5

- (a) As a National Development Planner, your division has been provided with funds to build a new maternity ward in one of the regions listed in Table 3. Basing your decision on Crude Birth Rates only, please motivate which region should get the funds to build a new maternity ward, and why the rest of the regions should not get the funds. (5)

Table 3: Reported Births by Region

Region	Population	Reported Births 15-49
Kavango West	89,313	3,095
Khomas	415,780	12,043
Kunene	97,865	4,277

Adapted from Namibia Statistics Agency (NSA), 2017

(b) According to the Namibia Statistics Agency’s *Namibia 2011 Population and Housing Census Indicators*, the total population size for Otjozondjupa Region was 135,384 in 2001 and 143,903 in 2011. Assuming a geometric growth rate and using the geometric growth projection method, determine the population size of the Otjozondjupa Region in 2030. Please show all the formulas and calculation steps. Furthermore, please use the complete growth rate, and round off the 2030 population size to the nearest whole number. (8)

[13]

Question 6

The simplest form of analysing relationships is bivariate analysis. Compare the two types of bivariate analyses, being Correlation and Regression, using the comparison criteria listed in Table 4. Please do not complete the table in the actual question paper. Instead, draw the table in your answer book (script) and complete it accordingly. (10)

Table 4: Correlation and Regression Comparison

Comparison Criteria	Correlation	Regression
Meaning		
Objective		
Use		
Indication		
Dependent & Independent Variables		

[10]

Question 7

Migration has an impact on both the destination area and home area. Briefly discuss three (3) advantages and three (3) disadvantages of migration on the destination area.

[6]

Question 8

State whether the following are true or false.

- (a) Descriptive statistics deals with the collection ,organising, summarising and presenting of data in an informative way (2)
- (b) The “Universe” is a subset of the population (2)
- (c) Convenience sampling has the highest credibility of all qualitative sampling designs (2)
- (d) The mean is sensitive to outliers (2)
- (e) An internally displaced person is often referred to as a refugee even if the person flees conditions within his/her country’s borders (2)

[10]

TOTAL MARKS

100

END