



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT**

**DEPARTMENT OF ARCHITECTURE, PLANNING AND CONSTRUCTION**

<b>QUALIFICATION:</b> BACHELOR OF REGIONAL AND RURAL DEVELOPMENT	
<b>QUALIFICATION CODE:</b> 07BRAR	<b>NQF LEVEL:</b> 5
<b>COURSE CODE:</b> SRP520S	<b>COURSE NAME:</b> STATISTICS FOR REGIONAL PLANNERS
<b>DATE:</b> JANUARY 2023	<b>PAPER:</b> THEORY
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	Dr Eric Yankson
<b>MODERATOR</b>	Mr Pieter Genis

<b>INSTRUCTIONS</b>
Please write clearly and legibly!
Read each question carefully before answering it.
You must <b>answer all questions</b> in this exam.
Make sure your Student Number is on the EXAMINATION BOOKLET(s).

**This Question Paper Consists of 8 Pages (Including this Front Page)**



Question 1

**Select and write down the correct answers for the following:**

(a). All the following are steps in selecting a simple random sample except: (1)

- (i) Number the subjects in the sampling frame
- (ii) Ensure that the numbers are arranged in chronological order
- (iii) Generate a set of these numbers randomly
- (iv) Sample the subjects whose numbers were generated

(b). A/an ..... scale of measurement has a natural ordering of values (1)

- (i) Ordinal
- (ii) Nominal
- (iii) Interval
- (iv) Ratio

(c). The production of high-quality statistics is important for all the following reasons except: (1)

- (i) Planning and policy making for national development
- (ii) Informed and effective participation of the population in national discourse
- (iii) Monitoring national and sub-national, regional and international development agendas
- (iv) Reducing the powers of local authorities and regional councils



(d). The Namibia Quality Assurance Framework for Statistics can assist the National Statistics System in all the following ways except: (1)

- (i) Mobilising resources for data collection
- (ii) Monitoring the quality of statistics over time
- (iii) Providing a basis for planning to improve quality through application of good practices
- (iv) Reviewing the quality of current statistics

(e). Which of the following is not a classification of marital status? (1)

- (i) Single
- (ii) Double
- (iii) Divorced
- (iv) Widowed

(f). All the following personal characteristics affect migration with the exception of: (1)

- (i) Age
- (ii) Occupation
- (iii) Height
- (iv) Educational attainment

(g). With a random sample or randomised experiment, the ..... an observation has a particular outcome is the proportion of times that outcome would occur in a very long sequence of observations. (1)

- (i) Statistical sampling
- (ii) Parameter
- (iii) Probability
- (iv) Statistic



(h). ..... is a collection of data points over a set period. (1)

(i) Cross-sectional data

(ii) Time series data

(iii) Forecasting

(iv) Inferences

(i). In ....., data are analysed from a sample to make predictions about the larger population of interest. (1)

(i) Descriptive statistics

(ii) Inferential statistics

(iii) Composite indices

(iv) Time series data

(j). A variable is ..... if the possible outcomes are a set of separate values. (1)

(i) Continuous

(ii) Univariate

(iii) Coterminous

(iv) Discrete

[10]

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Question 2

(a) What is a composite indicator? (2)

(b) Outline two advantages and two disadvantages associated with composite indicators. (4)

[6]





Question 3

- (a) Define the term hypothesis testing. (1)
- (b) List the five-step procedure for testing a hypothesis. (5)
- [6]
- 

Question 4

Outline three reasons why response bias can occur in a survey. (3)

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Question 5

- (a) What is demography? (1)
- (b) List the five aspects of human populations which constitute the focus of demography. (5)
- [6]
- 

Question 6

Distinguish between the following terms:

- (a) Sex and gender (2)
- (b) Fecundity and fertility (2)
- (c) Mortality and life expectancy (2)
- (d) Emigration and immigration (2)
- [8]
-



Question 7

Suppose  $P(A)$  represents the probability that a local authority in Namibia will allocate more land to residents of informal settlements in the year 2023. If  $P(A) = 0.57$ , what is the probability that the local authority will **not** allocate more land to residents of informal settlements in the year 2023?

[3]

Question 8

The following show the marks obtained by selected Namibian planners in a professional exam: 80, 70, 55, 40, 55, 75, 60, 65, 70 and 55. Calculate the following for the marks:

- (a) Mean (2)
- (b) Median (2)
- (c) Mode (1)
- (d) Range (2)

[7]

Question 9

A survey estimates that the probability of the planning process being inclusive is 0.88. For the planning processes which are inclusive, 53% are also technologically oriented. What is the probability that a randomly selected planning process is both inclusive and technologically oriented?

[4]



Question 10

Let  $y$  represent the number of times planners have engaged with the local community over the past 12 months. Assuming that the probability distribution of  $y$  is approximately:  $P(0) = 0.25$ ,  $P(1) = 0.10$ ,  $P(2) = 0.45$ ,  $P(3) = 0.15$  and  $P(4) = 0.05$ .

- (a) Is  $y$  a discrete or a continuous variable? Please explain briefly. (2)
- (b) Construct a table showing the probability distribution of  $y$ . (5)
- (c) Find the mean of the probability distribution. (4)

[11]

Question 11

As a development planner, you have the task of sampling from the 15,000 residents in a region to find out the percentage of inhabitants who believe the regional council has been ineffective in delivering on its mandate. Explain how you would proceed if you want a systematic random sample of 200 residents.

[5]

Question 12

The weights of a sample of five development planners are as follows: 60, 75, 55, 90 and 100. Calculate the following for the weights:

- (a) Mean (3)
- (b) Sample variance (5)
- (c) Sample standard deviation (6)

[14]



Question 13

The following table summarises the demographic data for a certain region in 2018.

Demographic Details	Figures
Number of live births	12,500
Number of deaths	8,700
Average population	77,500
In-migration	6,000
Out-migration	5,500
Literate persons aged 15 years and above	52,000
All persons aged 15 years and above	60,000

(a) Calculate the following:

(i) Crude birth rate (3)

(ii) Crude death rate (3)

(iii) Net migration rate (4)

(iv) Literacy rate for the population aged 15 years and above. (3)

(b) Interpret the calculations in (a) above. (4)

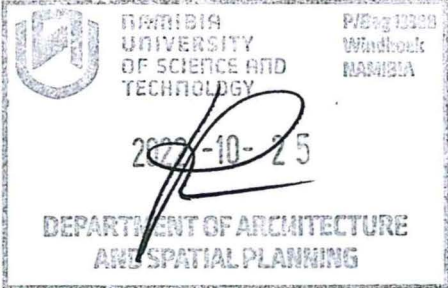
[17]

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END

TOTAL

[100]







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<b>INSTRUCTIONS</b>
Use model answers as a guide only (especially in the case of questions involving definitions, brief answers and calculations).  Marks should be awarded based on individual merit.

**This Memorandum Consists of 17 Pages (Including this Front Page)**

