NAMIBIA 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 2019	PAPER:	THEORY
DURATION:	3 HOURS	MARKS:	100

SUPPLEMENTARY/ SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
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

(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 Improvised Housing in Namibia

Region	Improvised 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 below. 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 2

(a) Data can be analysed through various approaches. Outline the four (4) common qualitative data analysis techniques.   (4)

(b) Correlation use Pearson's product moment, r, (-1 to +1) to measure the strength of a linear relationship between two variables. Identify what the following correlation values mean:

   (i)   Negative Correlation   (1)

   (ii)   Positive Correlation   (1)

   (iii) Zero Correlation   (1)

   (iv)   Correlation between 0.8 and 1, and -1 and -0.8   (1)

   (v)   Correlation between -0.5 and 0.5   (1)

(c) Various tools can be used to analyse relationships involving more than one variable. Explain the purposes of one of the bivariate analyses represented by the equation" y = a + bx."   (8)

[17]

Question 3

(a) In accordance with Figure 1 below, development in Windhoek went through several 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 4

(a) Infant Mortality Rate (IMR) is a more sensitive reflection of the health status and well-being of a community. Calculate the IMR using the data in Tables 3 and 4. Please round off your answer to the nearest whole number. (5)

Table 3: Reported Crude Birth Rate in Namibia

Area	Population	Reported Births 15-49	CBR
Namibia	2 324 388	75 765	32.6

Adapted from Namibia Statistics Agency (NSA), 2017

Table 4: Deaths by Age and Sex, Namibia

Reported Age at Death	Death		
	Total	Female	Male
Under 1	2 351	1 268	1 083
1-4	1 542	960	582

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 Hardap Region was 68,249 in 2001 and 79,507 in 2011. Assuming a geometric growth rate and using the geometric growth projection, determine the population size of the Hardap Region in 2025. Please show all calculation steps including formulas. Furthermore, please use the complete growth rate, and round off the 2025 population size to the nearest whole number.

(8)

(c) It is important for regional and development planners (especially in the public sector) to consider past, present and future population data. Explain, in five sentences, why it is important for the public sector to consider population analyses in regional planning and development.   (5)

[18]

Question 5

Complete the following table:
(draw it out onto your answer paper)

	Qualitative Research	Quantitative Research
Objective		
Sample size		
Method of data collection		
Data analysis		
Outcome of research		

(10)

[10]

Question 6

State whether the following are true or false.

(a) The sample standard deviation has no relationship with the population standard deviation

(1 ½)

(b) A sample statistic is a characteristic of the sample data   (1 ½)

(c) A statistic is simply a predictive measure of the sample characteristic   (1 ½)

(d) Stratified sampling is not possible when dealing with samples from a specific population size.
(1 ½)

(e) Upper quartile (03) is the point below which lies 25% of observations.   (1 ½)

(f) The net migration rate (NMR) can be determined by considering out-migration and in-migration
(1 ½)

(g) The larger our sample, the worse our estimate of the population parameter   (1 ½)

(h) Descriptive statistics are only concerned with summarizing or describing data from samples.
(1 ½)

(i) Inferential statistics are concerned with statistics and parameters   (1 ½)

(j) The median is the most reliable measure of central tendency   (1 ½)

[15]

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TOTAL MARKS   **100**

END