

UNIVERSITY OF ESWATINI

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION, OCTOBER/NOVEMBER 2021

**MSc. ENVIRONMENTAL RESOURCES MANAGEMENT - LAND AND WATER
RESOURCES MANAGEMENT**

TITLE OF PAPER: GEP RESEARCH TECHNIQUES

COURSE CODE: GEP608

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS:

- 1. ANSWER TWO (2) QUESTIONS ONLY.**
- 2. ANSWER ONE QUESTION FROM EACH SECTION.**
- 3. USE SEPARATE ANSWER BOOKLETS FOR EACH SECTION.**
- 4. ANSWER THE QUESTIONS IN ANY ORDER BUT LABEL THEM CLEARLY.**
- 5. WHERE APPROPRIATE, ILLUSTRATE YOUR ANSWERS WITH DIAGRAMS AND EXAMPLES.**

MARKS ALLOCATION: EACH QUESTION CARRIES 50 MARKS.

**THIS QUESTION PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS
BEEN GRANTED BY THE INVIGILATOR**

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SECTION A: ANSWER ONE QUESTION FROM THIS SECTION

QUESTION 1

- a) Identify and explain the five important issues on which to focus attention when doing a participant observation of interactions and behaviours of members of any social group of your choice. (15 marks)
- b) Using a diagram and examples, identify and explain four different types of 'variables'. (15 marks)
- c) Contrast the value of using simple random and convenience sampling techniques in a study investigating people's interpretation of traffic congestion in Manzini City. (10 marks)
- d) With reference to any research methods, explain these two philosophical positions:
 - i) Ontological realism (5 marks)
 - ii) Ontological relativism (5 marks)(50 Marks)

QUESTION 2

As you are about to graduate with a Masters' degree, you are motivated to do a doctoral degree. You came across a call for applications to a competitive scholarship, which requires submission of a research proposal for a three-year doctoral research project in any topic on sustainable utilization of land and water resources that combines quantitative and qualitative methods.

- a) Illustrating with a diagram, explain how you will use the funnel approach in selecting a suitable research topic and formulating your objectives and research questions. (15 marks)
- b) Identify and explain five styles of writing a literature review you will use to improve your chances of being awarded the scholarship over other applicants. (15 marks)
- c) Identify one (1) quantitative method and one (1) qualitative method that you will combine in data collection and explain their ontological and epistemological positions. (10 marks)
- d) Explain how you will use these theories to manage your time during the three years of the award.
 - i) Maslow's Theory (5 marks)
 - ii) Pickle Jar Theory (5 marks)(50 Marks)

SECTION B: ANSWER ONE QUESTION FROM THIS SECTION

QUESTION 3

- a) A soil scientist wishes to estimate the mean monthly weight of soil samples under different moisture levels in the Shiselweni region. After devising a scheme, which enables him to determine the weight of the soil each month, he does a pilot survey and finds that a standard deviation of the monthly soil weight is about 85g. He considers taking a random sample of either 25 soil samples or 100 soil samples, or 625 soil samples for the main survey.
- Estimate the standard error of the sample mean for each of these four sample sizes. (6 marks)
 - How do these standard errors explain why large samples are more reliable than small samples? (3 marks)
- b) A Ministry of Education official wishes to know how effective health education efforts are regarding smoking and drug abuse in schools. Out of 100 males sampled in 2005, 51 were found to be smokers. In 2020 a second random sample of 100 males similarly gathered, indicated that 43 were smokers.
- Is there any change in smoking prevalence among school children? (5 marks)
 - Identify and discuss any three tests of reliability the official can use in this study. (15 marks)
- c) There are different methods used for summarizing qualitative and quantitative data. Using at least two graphical data representation methods, graphically represent the following categorical data. (5 marks)

Characteristics of Villagers at Gege	Absolute Frequency	Relative Frequency	Percentage
Unemployed	214	0.2	20
Farmers	677	0.63	63
Retired civil servants	135	0.13	13
Government employees	48	0.04	4
Total	1074	1	100

- d) The following is data samples on the height of eucalyptus trees after 1 year:

189, 165cm, 185 cm, 160cm, 181cm, 172cm, 178cm, 175cm, 178cm, 177cm

- Using the above data calculate the interquartile range. (4 marks)
- In order to achieve the assumption of normality, the researcher increased the above sample size to 60. After analysing the data, the researcher found that the mean was 177 cm. Calculate the 95% confidence interval for this mean. (4 marks)

- e) The following table shows a cross-classification of marital status and job satisfaction from the 2021 General Social Survey following the effects of COVID-19 on the population in Eswatini.

	very/moderately satisfied	very /moderately dissatisfied	Total
Married	459	186	645
Divorced/widowed/ Separated	214	45	259
Never married	289	49	338
Total	962	280	1242

- i) What proportion of individuals is dissatisfied with their job? (2 marks)
- ii) What proportion of individuals are dissatisfied with their job and married? (2 marks)
- iii) What proportion of married individuals are dissatisfied with their job? (2 marks)
- iv) What proportion of individuals who never married is dissatisfied with their job? (2 marks)
- (50 Marks)**

QUESTION 4

The Eswatini Water and Agriculture Enterprise has awarded you a research grant to undertake a qualitative study in the Shiselweni region using focus group discussions to explore experiences, perceptions and actions of diverse community members to access to water during Covid-19.

- a) Outline the advantages and disadvantages of using focus group discussions in this study. (10 marks)
- b) Identify and describe any three different groups of community members you will bring together and important features you will take into account in recruiting them. (15 marks)
- c) Formulate a list of ten broad questions (and possible probing questions where necessary) that you will have in the interview guide. (10 marks)
- d) Identify and explain the three basic procedural steps you will follow in manually analysing data you have collected using the generic qualitative data analysis approach. (15 marks)
- (50 Marks)**