



UNIVERSITY OF  
SWAZILAND

FACULTY OF HEALTH SCIENCES

BSc IN ENVIRONMENTAL HEALTH SCIENCES

SUPPLEMENTARY EXAMINATIONS

TITLE OF PAPER: RESEARCH METHODS

COURSE CODE: EHM308

DURATION: 2 HOURS

DATE: JUNE/JULY 2014

INSTRUCTIONS:

1. READ THE QUESTIONS CAREFULLY.
2. ANSWER ANY 4 QUESTIONS.
3. EACH QUESTION CARRIES 25 MARKS. WHERE A QUESTION IS SUBDIVIDED INTO PARTS, THE MARK FOR EACH PART IS SHOWN IN BRACKETS.
4. NO PAPER SHOULD BE BROUGHT INTO THE EXAMINATION ROOM.
5. BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER.

**SPECIAL REQUIREMENTS:** Calculator

DO NOT OPEN THE QUESTION PAPER UNTIL INSTRUCTED TO DO SO BY THE INVIGILATOR

### QUESTION 1

Write notes on the following terms:

- a. Placebo effect. [5]
- b. Non-probability sampling. [10]
- c. Randomisation. [10]

[25]

### QUESTION 2

Distinguish between the following:

- a. Cross-sectional study and longitudinal study. [10]
- b. Reliability and validity. [6]
- c. Multistage sampling and cluster sampling. [9]

[25]

### QUESTION 3

a. Define the following terms:

- i. Percentiles. [2]
- ii. Median. [2]
- iii. Mode. [2]
- iv. Standard deviation. [2]
- v. Cohort. [2]

b. Explain the purpose of doing the following during research:

- i. Pre-testing questionnaire. [5]
- ii. Replicating a study. [5]
- iii. Blinding a study. [5]

[25]

### QUESTION 4

- a. A survey was undertaken to determine the incidence of alcoholism in different professional groups. Random samples of pastors, lecturers, executives and salesman were interviewed. The observed and expected (brackets) frequencies are given in the table below.

	Alcoholic	Non-alcoholic	Sample size
Pastors	32(58.25)	268(241.75)	300
Lecturers	51(48.54)	199(201.46)	250
Executives	67(58.25)	233(241.75)	300
Salesman	83(67.96)	267(282.04)	350
<b>Total</b>	<b>233</b>	<b>967</b>	<b>1200</b>

- i. State the null hypothesis. [2]
  - ii. Given that  $\chi^2 = 20.59$  ( $\chi^2_{0.05} = 7.81$ ), state your conclusions about the null hypothesis. [3]
- b. Mining operations at asbestos mine are suspected to be cause of reported cases of lung cancer in the Hhohho region of Swaziland. Explain how a study to prove/disprove this hypothesis should be done. In your answer, suggest a population, the research design, the sampling frame, and sampling plan. [15]
- c. Explain how correlation coefficients improve the statistical significance of research data. [5]

[25]

#### QUESTION 5

Discuss the ethical standards required for treatment of human participants in research under the following headings:

- iv. Avoiding harm. [5]
- v. Privacy and confidentiality. [5]
- vi. Justice. [5]
- vii. Informed consent. [10]

[25]

**END OF EXAMINATION**