



**UNIVERSITY OF
SWAZILAND**

FACULTY OF HEALTH SCIENCES

DIPLOMA IN ENVIRONMENTAL HEALTH SCIENCES

END OF SEMESTER I EXAMINATIONS

TITLE OF PAPER: RESEARCH METHODS

COURSE CODE: HSC306

DURATION: 2 HOURS

DATE: DECEMBER 2011

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 INTRUSCTED TO DO SO BY THE INVIGILATOR.

QUESTION 1

Write notes on the following:

- a. Randomization. [5]
- b. Validity. [5]
- c. Correlation coefficient. [5]
- d. A treatment. [5]
- e. Confounding factors. [5]

[25]

QUESTION 2

- a. Explain the effect of increasing sample size on the reliability of data. [5]
- b. Distinguish between cohort and case control studies. [10]
- c. Briefly explain the importance of conducting a double blind trial. [10]

[25]

QUESTION 3

- a. List the steps in hypothesis testing. [7]
- b. 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
Total	233	967	1200

- 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]
- c. Mining operations at the Ngwenya mine are suspected to be responsible for some reported cases of lung cancer in Swaziland. Describe how you could go about conducting a study to prove/disprove this hypothesis. In your answer, state the population, the research design, the sampling frame, and sampling plan. [13]

[25]

QUESTION 4

- (a) Explain the purpose of each of the following steps during research:
- Pre-testing a questionnaire. [5]
 - Obtaining informed consent. [5]
- (b) Discuss the challenges associated with conducting research involving children as subjects. [15]

[25]

QUESTION 5

- (a) Explain the difference between completely randomized design and randomized block design. [10]
- (b) Justify the use of blind and double blind studies in health research, highlighting the importance of the control group. [15]

[25]

THE END