UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

FINAL EXAMINATION PAPER, MAY 2009

TITLE OF PAPER: HEALTH STATISTICS

COURSE CODE: HSC 404

TIME ALLOWED: TWO (2) HOURS

MARKS: 75

INSTRUCTIONS:

1. THERE ARE THREE (3) QUESTIONS IN THIS PAPER
2. ANSWER ALL THREE (3) QUESTIONS
3. EACH QUESTION IS ALLOCATED 25 MARKS
4. WRITE LEGIBLE
5. ALL FINAL ANSWRES MUST BE TO THE NEAREST 2/10

THIS PAPER IS NOT TO BE OPENED UNTIL THE INVESTIGATOR HAS GRANTED PERMISSION.

QUESTION 1

A. Below are brief descriptions of how researchers measured a variable. For each situation, determine the level of measurement of the variable and also state whether it is continuous or discrete. (10)

(i) **Honesty.** Subjects were observed as they passed a spot on campus where an apparently lost wallet was lying. The wallet contained money and complete identification. Subjects were classified into one of the following categories:

_____Returned the wallet with money;

_____ Returned the wallet but kept the money;

_____ Did not return the wallet.

(ii) **Education.** Subjects were asked how many years of schooling they competed.

(iii) **Race.** Respondents were asked to select a category from the following list.

_____ Black _____ White _____ Other

(iv) **Social class.** Subjects were asked about their family situation when they were 16 years old.

Was their family?

_____ Very well off compared to other families?

_____ About average?

_____ Not so well off?

(v) **Number of children.** Subjects were asked: "How many children have you ever had? Please include any that may have passed away".

B. The data below represent the number of people suffering from different diseases or conditions in your health facility.

Disease / condition	Number of people
Tuberculosis	62
Malaria	36
Gout	9
Septicemia	37
Uterine fibroids	18
Parkinsonism	8
Cataract	38
Diabetes mellitus	11
Meningitis	30
Abortion	39
Anemia	22

(i) Calculate the mean and median of this distribution. (3)

(ii) Compute the coefficient of variation (CV) for people who suffer from Diabetes mellitus. (5)

(iii) Calculate the coefficient of variation (CV) for people suffer from uterine fibroids (5)

(iv) Which of the above two groups (in ii and iii) of clients has more variability? (2)

TOTAL 25 MARKS

QUESTION 2

A. In your sample of N = 295 male participants of the Kikuyu ethnic group, n = 68 participants were diagnosed with prostatic cancer. What is the probability of prostatic cancer in your sample? (5)

B. In a longitudinal study, the probability of lung cancer among 3,569 participants who have been smoking over a period of 25 years was found to be 65.4%. What subset of the sample had cancer of the lung? (5)

C. The scores of fifty (N = 50) students, which they obtained in a Health Statistics test, ranged between the following grades.

Grade (score obtained)	N
52 – 56	11
57 – 61	12
62 – 66	16
67 – 71	6
72 – 76	3
77 – 81	2

(i) Calculate the 84^{th} percentile for the above distribution. (5)

(ii) Calculate the 50^{th} percentile for the above distribution. (5)

(iii) Obtain the percentile of the score 64. (5)

TOTAL 25 MARKS

QUESTION 3

A. The city of Manzini with a total population of 45. 443 people, experiences 139 mortality and 276 morbidity per year.

Compute the rate of morbidity, and the rate of mortality per 100, 00 population (6)

B.Simunye has an accident rate of 252, 74 per 100, 00 people. What is the population of Simunye? (3)

C.The Ezulwini Community has the following statistics of males and females who were attended in different health facilities for their health needs, in March 2009.

Facility	Males	Females
Lobamba Clinic	83	90
Ezulwini Community Clinic	70	132
Mbabane Govt. Hospital	20	72
Raleign Fitkin Memorial Hospital (RFM)	45	13
Mankayane Gvt.Hospital	12	17

(i) What proportion of female clients from Ezulwini were attended at Mankayane Government Hospital? (3)

(ii) What is the ratio of females to males for all the Ezulwini Community members who were attended in different health facilities? (3)

(iii) What percentage of male clients from Ezulwini was attended at Lobamba Clinic?

(3)

B. Interpret the bivariate linear regression output, which analyzed the relationship between the family size (independent variable) and the number of credit cards (dependent variable). (6)

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	FAM_SIZE[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: C_CARDS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866[a]	.751	.709	.95618

a. Predictors: (Constant), FAM_SIZE

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.514	1	16.514	18.063	.005[a]
	Residual	5.486	6	.914		
	Total	22.000	7			

a. Predictors: (Constant), FAM_SIZE

b. Dependent Variable: C_CARDS

TOTAL 25 MARKS