UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

FINAL EXAMINATION JUNE 2019

TITLE OF PAPER: DATA ANALYSIS & INTEPRETATION

COURSE CODE: GNS 612

TIME ALLOWED: THREE (3) HOURS

PAGES FIVE (5) COVER PAGE

MARKS: 100

INSTRUCTIONS:

1. ENSURE THAT YOU ARE WRITING THE EXAM FOR THE COURSE IN WHICH YOU ARE REGISTERED.
2. THERE ARE FOUR (4) QUESTIONS IN THIS PAPER.
3. ANSWER ALL FOUR (4) QUESTIONS.
4. SHOW ALL YOUR WORK.
5. WRITE LEGIBLE.

THIS PAPER IS NOT TO BE OPENED UNTIL THE INVIGILATOR HAS GRANTED

PERMISSION.

QUESTION 1

A. **Hypothetical Scenario:** In your study you were interested in determining if there was an association between your independent variables, counselling for mental problems and being ill enough to see a doctor, and the dependent variable, drinking problem. Your findings are presented in the output below.

Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1ᵃ	counsellin g	-2.594	.526	24.365	1	.000	.075	.027	.209
	Ill enough	.161	.518	.097	1	.756	1.175	.425	3.246
	Constant	4.463	.411	118.156	1	.000	86.706		

Variable(s) entered on step 1: counselling for mental problems – 1: Yes, 2: No, ill enough to see a doctor – 1: Yes, 2: No.

Dependent variable: drinking problem – 1: Yes, 2: No

(i) Interpret the findings.   (6)

(ii) What is the statistical test that you used to analyse the data?   (2)

(iii) The statistical test that you used is applied on two (2) different sets of data (Independent and dependent variables), state the types of variables to which the statistical test is applicable?   (2)

(iv) Which other statistical test could you have used to analyze the data?   (2)

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B. **Hypothetical Scenario:** You conducted a study in a period of 12 months, in which you assessed the relationship between having multiple sexual partners and the development of Kaposi 's sarcoma, a cancer transmitted by human herpes simplex 8.

		Kaposi's sarcoma		Total
		Yes	No	
Multiple sex partners	Yes	21	9	30
	No	6	14	20
Total		27	23	50

(i) Calculate the Risk Ratio for these data.   (5)

(ii) Compute the 95% Confidence Interval for the Risk Ratio.   (5)

(iii)Interpret your findings.   (3)

TOTAL = 25 MARKS

QUESTION 2

A. In you study you examined the association between the independent variable, smoking and dependent variable, taking illegal drugs.Here are the findings that you obtained.

are_you_smoking * usng_any_illegal_drugs Crosstabulation

			usng_any_illegal_drugs		Total
			no	yes	
are_you_smoking	no	Count	91	4	95
		Expected Count	75.7	19.3	95.0
		% within are_you_smoking	95.8%	4.2%	100.0%
		% within usng_any_illegal_drugs	92.9%	16.0%	77.2%
	yes	Count	7	21	28
		Expected Count	22.3	5.7	28.0
		% within are_you_smoking	25.0%	75.0%	100.0%
		% within usng_any_illegal_drugs	7.1%	84.0%	22.8%
Total		Count	98	25	123
		Expected Count	98.0	25.0	123.0
		% within are_you_smoking	79.7%	20.3%	100.0%
		% within usng_any_illegal_drugs	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	66.920[a]	1	.000		
Continuity Correction[b]	62.620	1	.000		
Likelihood Ratio	59.539	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	66.376	1	.000		
N of Valid Cases	123				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.69. .

b. Computed only for a 2x2 table

   (i) State your study hypotheses. (3)

   (ii) Present you Chi-Square findings. (3)

   (iii)Based on the findings in B, what will be your decision? (2)

   (iv)Interpret your findings. (3)

B. (i) Descibe any five (5) differences between parametric and non-parametirc tests. (10)

(ii) You collected data on the nurse's experiences of providing test and treat services to HIV positive clients in one of the regional hospitals in Manzini. The best way to analyze this data will be:

   A. Chi-square

   B. Thematic analysis

   C. Percentages

   D. Standard deviation (2)

(iii) In your study your independent variable is continuous and your dependent variable is continuous too. Which will be the best measure to analyse your data?

A. Chi-square

B. Linear Regression

C. Logistic Regression

D. Kruskal-Wallis   (2)

TOTAL = 25 MARKS

QUESTION 3

A. The score obtained on a test for anxiety neurosis is known to be normally distributed with a mean of 50 and variance 36. Find the probability that a person randomly selected from the population will score on this test:

    (i)   Less than 60,

    (ii)   Less than 30,

    (iii)   More than 45,

    (iv)   Between 35 and 68

    (v)   More than 72.   (10)

B. Suppose it is known that 10% of a certain population is colour blind. If a random sample of 20 people is drawn from this population, find the probability that fewer than two (2) will be colour blind?   (7.5)

C. A survey conducted for women living in border provinces along South Africa and Kingdom of Eswatini, and who have less than a High School Education is 30%. Suppose we select five women at random.If a random sample of 15 people is drawn from this population, find the probability that the number with High School Education is; Two

    (7.5)

TOTAL = 25 MARKS

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QUESTION 4

A. Given the following data;

Degrees of freedom	15
Variance	4
Mean	25

Construct 95% confidence interval   (10)

B. A study was conducted to examine a sample of 16 subjects with open-angle glaucoma and unilateral hemifield defects. The ages (years) of the subjects were:

    62   62   68   48   51   60   51   57

    57   41   62   50   53   34   62   61

C. Can we conclude that the mean age of the population from which the sample may be presumed to have been is less than 62 years?   (15)

TOTAL = 25 MARKS