



UNIVERSITY OF ESWATINI

FINAL EXAMINATION

(Total Marks: 100)

PROGRAMME:

- : B.Sc. ABE YEAR 3
- : B.Sc. AG. ECON. & AGBMGT YEAR 3
- : B.Sc. AG. EDUCATION YEAR 3
- : B.Sc. AG. EXTENSION YEAR 3
- : B.Sc. AGRON. YEAR 3
- : B.Sc. ANI. SCI. YEAR 3
- : B. Sc. ANI. SCI. (DAIRY) YEAR 3
- : B.Sc. COS YEAR 3
- : B.Sc. COS. ED. YEAR 3
- : B.Sc. FSNT YEAR 3
- : B.Sc. HORT. YEAR 3
- : B.Sc. TADM YEAR 3

PAPER

: **AEM303**

TITLE OF PAPER

: **Applied Agricultural Statistics**

TIME ALLOWED

: **TWO (02) Hrs.**

INSTRUCTIONS

1. ANSWER ALL QUESTIONS.
2. QUESTIONS CARRY MARKS AS INDICATED IN THIS PAPER.
3. USE ANSWER SHEET FOR ALL QUESTIONS.

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR.

130

SECTION – A (Total Marks=40)

Question No. 1. Write the short answer for each of the following. [10 Marks]

- a. What is t-test in statistics?
- b. Explain the importance of Non-parametric test.

Question No. 2. Write the most correct answer [21 Marks]

- 2.1 One of the following is not the component of experiment
- a. experimental units
 - b. treatment
 - c. method of design
 - d. response
 - e. none of the above
- 2.2 A good experimental design must
- a. avoid systematic error
 - b. be precise
 - c. allow estimation of error
 - d. all are correct
- 2.3 The value of a Chi-square test statistics cannot be
- a. zero
 - b. negative
 - c. positive
 - d. one
 - e. determined unless the data values are given.
- 2.4 A correlation coefficient of -1 implies
- a. that we must made a computational error
 - b. that as x variable decreases, the y variable also increase
 - c. that a perfect linear relationship exists between the variables
 - d. both b and c are correct.
- 2.5 The Mann-Whitny U test is the non-parametric test equivalent of:
- a. paired t-test
 - b. unpaired t-test
 - c. one-way ANOVA
 - d. a and b
- 2.6 Which of the following tests can not be used for testing the hypothesis that two populations differ in their location parameter's
- a. Run test
 - b. Sign test
 - c. Wilcoxon test
 - d. Chi Square test
- 2.7 If in a Latin Squared Design the total degree of freedom is 15. Then the degree of freedom for error is
- a. 3
 - b. 6
 - c. 12
 - d. 9

Question No. 3.**[09 Marks]**

Find the most likely price in Manzini corresponding to the price of E80 at Manzini from the following.

	Manzini	Matsapha
Average Price of the Commodities in E (Emalangeneni)	70	75
Standard Deviation	2.0	3.0

Correlation coefficient between the prices of commodities in the two cities is 0.80

SECTION – B (Total Marks=60)**Question No. 1.****[25 Marks]**

A new finding on field experiments shows, a new variety of Maize is expected to give a yield of 60 quintals per hectare. The variety as tested on 10 randomly selected farmer's fields around Manzini. The yields (quintal/hectare) were recorded as 65, 62, 53, 61, 69, 78, 52, 56, 65, and 61. Do the results conform to the expectation? (Use $\alpha = 0.05$)

Key points to be considered.

- a) State the hypotheses. **(05 Marks)**
- b) Find the critical value? **(05 Marks)**
- c) Calculate the test value? **(10 Marks)**
- d) Make decision. **(02 Marks)**
- e) Interpret your result. **(03 Marks)**

Question No. 2.**[10 Marks]**

Complete & write the following ANOVA table for LCD in which each treatment appeared once in each block.

Source of variation	df	SS	MS	F
Treatments	_____	12	_____	_____
Row	3	_____	6	_____
Column	_____	27	_____	_____
Errors	_____	_____	0.8	_____

Question No. 3.**[25 Marks]**

A study was conducted to determine the relationship between a person's weekly income in Emalangeneni(E) and the number of meals that person eats away from home per week.

Income x	230	300	999	945	250	400	540
Meals y	8	12	16	13	9	13	15

- a. Compute the correlation coefficient (r) between x and y . **(07 Marks)**
- b. State the hypotheses **(05 Marks)**
- c. Find the critical value. **(03 Marks)**
- d. Compute the test value. **(06 Marks)**
- e. Make the decision. **(04 Marks)**

END OF PAPER

AEM 303

Tabulated Value of t-Distribution

Degree of Freedom	Level of Significance		
	0.01 (1%)	0.05 (5%)	0.10 (10%)
3	5.84	3.18	2.35
5	4.03	2.57	2.02
7	3.49	2.37	1.89
9	3.25	2.26	1.83

CORRECTION

SECTION-A

Question No.3

Manzini (X) & Matsapha (Y), Find out the most likely price in Manzini (X) if price is E80 at Matsapha (Y).