



UNIVERSITY OF ESWATINI

FINAL EXAMINATION

(Total Marks: 100)

PROGRAMME:

- : B.Sc. ABE YEAR 2
- : B.Sc. AG. ECON. & AGBMGT YEAR 2
- : B.Sc. AG. EDUCATION YEAR 2
- : B.Sc. AG. EXTENSION YEAR 2
- : B.Sc. AGRON. YEAR 2
- : B.Sc. ANI. SCI. YEAR 2
- : B. Sc. ANI. SCI. (DAIRY) YEAR 2
- : B.Sc. COS YEAR 2
- : B.Sc. COS. ED. YEAR 2
- : B.Sc. FSNT YEAR 2
- : B.Sc. HORT. YEAR 2
- : B.Sc. TADM YEAR 2

PAPER

: AEM202

TITLE OF PAPER

: ELEMENTARY 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 INVIGILATOR.

QUESTION NO. 1**(Marks: 25)**

(a) Explain the additive and multiplicative law of probability if (i) two events A & B are independent event (ii) A and B are dependent event.

(Marks: 10)

(b) Mr. Dlamini appears for an interview for two posts Grade A and Grade B for which selection is independent. The probability of his selection for post Grade A is $(1/11)$ and for Grade B, it is $(1/13)$. Find the probability that Mr. Dlamini is selected for (i) both posts (ii) at least one post.

(Marks: 15)**QUESTION NO. 2****(Marks: 25)**

(i) The marks of 10 students in Economics (X) and Statistics (Y) are as follows.

Economics(X):	55	45	65	66	67	67	68	64	70	62
Statistics(Y) :	70	65	87	65	75	68	80	72	69	70

(a) Calculate the correlation coefficient of the marks for Economics and Statistics

(Marks:10)

(b) Test the significance of correlation coefficient with t-test if tabulated value of t-test is 2.306 at 5% level of significance.

(Marks: 05)

(ii). A milk shop owner recorded the daily turnover (in Emalangeni) of his outlet for 300 trading days shown in the frequency table given below

Daily Turn Over	200-300	300-400	400-500	500-600	600-700	700-800	800-900
No. of Days	18	23	47	81	63	55	13

a. Find the average turnover (Arithmetic Mean) of the milk shop by using change of origin and scale method (**Short-cut method**)

(Marks: 05)

b. Find out the standard deviation of the distribution by using change of origin and scale method (**Short cut method**)

(Marks: 05)

QUESTION NO. 3**(Marks: 25)**

(a) Samples of two types of electric tube light A and B were tested for length of life and following data were obtained.

(Marks: 05)

Type of Tube Light	Statistic		
	Sample Size	Average Life	Standard Deviation
Tube Light A	20	75 Days	31.8 Days
Tube Light B	20	68 Days	25.4 Days

Explain which tube has the greater relative variation?

(b) In order to determine the possible effect of a chemical treatment on the rate of germination of cotton seeds, a pot culture experiment was conducted. 140 chemically treated seeds and 160 untreated seeds were sown. The results are given below:

	Germinated	Not Germinated	Total
Chemically treated	116	24	140
Untreated	122	38	160
Total	238	62	300

Does the chemical treatment improve the germination rate of cotton seeds (If tabulated value of Chi-square is 3.84 at 5% level of significance)?

Include the following in your answer.

(i) Statistical Hypotheses.

(05 Marks)

(ii) Calculated test value.

(10 Marks)

(iii) Decision.

(05 Marks)**QUESTION NO. 4****(Marks: 25)**

(a) **Fill in the blanks (Only write the answers)** (Total Marks: 15, 03 marks each)

i. The strength of 7 colleges in a city is 1085, 1755, 1545, 1940, 1590, 2875, 2020. Then the median strength is

ii. Select the correct missing value, Mean = (----- x Median + ----- Mode)

iii. is/are affected by extreme observations in measures of central tendency.

iv. The most suitable measure of dispersion is

v. In a normal distribution the Mean, Median and Mode are

(b) Write a short answer on any **TWO**

(Total Marks: 10, 05 marks each)

- (i) Describe the Binomial Distribution.
- (ii) Explain the characteristics of Good Estimator.
- (iii) Describe the Stratified Random Sampling.

GOOD LUCK