

**UNIVERSITY OF SWAZILAND****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**: AEM 202****TITLE OF PAPER****: ELEMENTARY STATISTICS****TIME ALLOWED****: TWO (02) Hrs.****INSTRUCTIONS**

1. ANSWER **ALL** QUESTIONS IN **ALL** SECTIONS (A, B, C & D)

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.

SECTION – A
(Marks: 20)

A. Fill in the blanks (Only write the answers) (Total Marks: 10, 02 marks each)

i. The strength of 7 colleges in a city is 1585, 1745, 1548, 1935, 1985, 2870, 2015, hence the median strength is

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

iii. is/are not affected by extreme observations in measures of central tendency.

iv. The most suitable tool for measure of dispersion is

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

B. Select and Write the correct answer (Total Marks: 10, 02 marks each)

1. If the mean of ten values is 70 and nine of the values are 48, 72, 79, 56, 45, 96, 88, 75 and 66 then the tenth value will be

[a] 70 [b] 75 [c] 65 [d] 80 [e] None of these

2. The coefficient of correlation will have a negative sign when

[a] X is increasing, Y is decreasing [b] Both X and Y are increasing
[c] Both X and Y is decreasing [d] No change in X and Y [e] None of these

3. A selection procedure of a sample that has involvement of probability is known as

[a]. Purposive sampling [b]. Systematic sampling [c]. Subjective sampling
[d]. Judgment sampling [e]. None of these

4. Which one is a property of Poisson probability distribution?

[a]. Probability p is large [b]. No. of trials are finite [c]. Mean = Variance
[d]. Probability (p) = 0 [e]. None of these

5. If A and B are dependent events then $P(A \cup B)$ is equal to

[a]. $P(A) + P(B) + P(A \cap B)$ [b]. $P(A) + P(B)$ [c]. $P(A) - P(B)$
[d]. $P(A) + P(B) - P(A \cap B)$ [e]. None of these

SECTION- B
(Total Marks: 20)

1. The marks of same 08 students in Statistics (X) and Mathematics (Y) are as follows.

Statistics(X)	:	65	66	67	67	68	69	70	72	(Marks: 10)
Mathematics(Y)	:	67	68	65	68	72	72	69	71	

Calculate and explain the correlation coefficient for proficiencies of these subjects.

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

Daily Sale	500-600	600-700	700-800	800-900	900-1000	1000-1100	1100-1200
No. of Days	25	18	45	60	87	50	15

Calculate the average turnover of the milk shop and standard deviation (By using change of origin & scale method)

(Marks: 10)

SECTION- C
(Total Marks: 35)

1. Find the probability of winning a new car from a lottery where the prizes contain 8 old local cars, 7 new cars and 5 imported used cars.

(Marks: 05)

2. 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 is $(1/13)$. Find the probability that Mr. Dlamini is selected for both posts.

(Marks: 05)

3. A committee of 5 persons is to be selected from a group of 6 men and 8 women. If the selection is made randomly, find the chance that there are 3 men and 2 women in committee.

(Marks: 10)

4. From the following table showing the number of plants having certain characters, test the hypothesis that the flower color is independent of the shape of the leaf by using Chi-Squared test (χ^2 - test).

(Marks: 15)

Flower Color	Flat leaves	Curled leaves	Totals
White flowers	99	36	135
Red flowers	20	05	25
Total	119	41	160

(Tabulated value of Chi-square is 3.84 at 5% level of significance)

117

SECTION- D
(Total Marks: 25)

a. Match and Write the following**(Total Marks: 10, 02 marks each)**

- | | | |
|--------------------------|-----|------------------------------------|
| 1. Binomial Distribution | [a] | $1 - [6 \sum D_i^2 / N(N^2 - 1)]$ |
| 2. Poisson Distribution | [b] | $\sum [(O_i - E_i)^2 / E_i]$ |
| 3. Rank Correlation | [c] | $[\sum (x_i - \mu)^2] / \sum f_i$ |
| 4. Variance | [d] | $\exp^{-\lambda} \lambda^x / x !$ |
| 5. Chi-Square Test | [e] | ${}^n C_x \cdot p^x \cdot q^{n-x}$ |

b. Write in short answer on any THREE**(Total Marks: 15, 05 marks each)**

- (i) Describe the Normal Distribution.
- (ii) Explain the characteristics of Good Estimator.
- (iii) Describe the Stratified Random Sampling.
- (iv) Describe the parametric test.

