

**UNIVERSITY OF SWAZILAND****FINAL EXAMINATION****(Total Marks: 100)**

PROGRAMME:	:	B.Sc. ABE YEAR 2
	:	B.Sc. AG. ECON. & AGBMGT YEAR 2
	:	B.Sc. AG. EDUC. & EXT. 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 201
TITLE OF PAPER	:	ELEMENTARY STATISTICS
TIME ALLOWED	:	TWO (02) Hrs.
INSTRUCTIONS		1. ANSWER <u>ALL</u> QUESTIONS IN <u>ALL</u> SECTIONS (A, B, C & D)
		2. QUESTIONS CARRY MARKS AS INDICATED IN THIS PAPER.
		3. USE ANSWER SHEET FOR <u>ALL</u> QUESTIONS.

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

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SECTION – A
(Marks: 30)

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

i. The strength of 7 colleges in a city are 985, 1745, 1548, 1935, 1585, 2870, 2015. Then 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 measure of measures of dispersion is

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

B. Select and Write the correct answer (Total Marks: 20, 02 marks each)

1. Which statistic is/are much affected by extreme values?

- [a] Mode [b] Median [c] Mean [d] St. Deviation [e] a & b
[f] c & d [g] None of these

2. If the mean of ten values is 70 and the 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

3. Given the following eight observations 5, 10, 9, 7, 8, 6, 6 and 5, then the 5 is ----- of those observations?

- [a] Mean [b] Median [c] Mode [d] Range [] [e] None of these

4. The sum of squares of deviations is least when measured from

- [a] Median [b] Mean [c] Mode [d] Zero [e] One [f] None of these

5. The coefficient of correlation will have 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

6. A selection procedure of a sample having involvement of probability is known as

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

7. 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

8. 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

9. Which of the following can never be negative value?

- [a]. Probability
- [b]. Median
- [c]. Mean
- [d]. Correlation Coefficient
- [e]. Standard Deviation
- [f]. None of these

10. If each and every unit of the population has some chance of being included in the sample, it is known as

- [a]. Restricted sampling
- [b]. Random sampling
- [c]. Purposive sampling
- [d]. Simple random sampling
- [e]. None of these

SECTION- B
(Total Marks: 20)

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

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

Average Marks of Statistics is 68 and Average Marks of Mathematics is 69. Calculate and explain the correlation coefficient for proficiencies of these subjects Statistics and Mathematics.

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2. A milk shop owner recorded the daily turnover in (US\$) of his outlet for 290 trading days shown in the frequency table given below

Daily Turn Over	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of Days	20	18	45	87	60	50	10

a. Find the average turnover of the milk shop

(Marks: 05)

b. Find out the variance of the distribution

(Marks: 05)

SECTION- C
(Total Marks: 25)

1. Find the probability of winning a new car from a lottery which prizes contains 8 local old, 7 new 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, it is $(1/13)$. Find the probability that Mr. Dlamini is selected for both posts. (Marks: 05)

3. Samples of two types of electric tube light A and B were tested for length of life and following data were obtained. (Marks: 5)

	Sample Size.	Sample Mean	Sample Standard deviation
Tube Light A	20	45 Days	41.8 Days
Tube Light B	20	38 Days	23.4 Days

Explain which tube has the greater relative variation?

4. From the following table show the number of plants having certain characters, to make and test the hypothesis that the flower color is independent or dependent of the shape of the leaf. (Marks: 10)

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)

SECTION- D
(Total Marks: 25)

a. Match and Write the following

(Marks : 10, 02 marks each)

- | | | |
|--------------------------|-----|------------------------------------|
| 1. Binomial Distribution | [a] | $1 - [6 \sum D_i^2 / N(N^2 - 1)]$ |
| 2. Poission 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 short answer on any THREE of the following.

(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) Explain the Pie Chart

GOOD LUCK