70

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: : B.SC. AG. ECON. & AGBMGT YEAR 2
: B.SC. AG. EDUC. & EXT. YEAR 2
: B.SC. ANI. SCI. YEAR 2
: B. Sc. ANI. SCI. (D) YEAR 2
: B.SC. AGRON. YEAR 2
: B.SC. HORT. YEAR 2
: B.SC. ABE YEAR 2
: B.SC. COS YEAR 2
: B.SC. FSNT YEAR 2
: B.SC. TADM YEAR 2
: B.SC. COS ED.YEAR 2

PAPER : **AEM 201**

TITLE OF PAPER : **ELEMENTARY STATISTICS**

TIME ALLOWED : **TWO HOURS**

INSTRUCTIONS

1. ANSWER QUESTIONS IN ALL SECTIONS

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.

SECTION - A

Write the letter of correct answer   Total Marks: 20 (Each Question is 2.0 Marks)

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 the above [ ]

2. If the mean of ten values is 75 and the nine of the values are 48, 71, 79, 56, 45, 96, 88, 75 and 66 then the tenth value will be

a. 70 [ ]   b. 65 [ ]   c. 45 [ ]   d. 80 [ ]   e. None of the above [ ]

3. Which one is not a property of the normal probability distribution?

a. Symmetrical about the central mean value [ ]

b. Mean = Median = Mode   [ ]

c. Bell shaped curve [ ]

d. The tail of the curve are asymptotic [ ]

e. None of the above [ ]

4. Given the following eight observations 5, 6, 9, 7, 8, 6, 6, 5. Then the 6 is --------- of those observations?

a. Mean [ ]   b. Median [ ] c. Mode [ ]   d. range [ ]   e. Variance [ ]

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

a. Random sampling [ ]   b. Purposive sampling [ ] c. Simple Random Sampling [ ]

d. a & b [ ]   e. a & c [ ]   f. b & c [ ]   g. All the above [ ]

6. Eight establishments are to be selected from a list of 80 establishments by systematic random sampling. If the first number is 8, the next one is

a. 18 [ ]   b. 17 [ ]   c. 19 [ ]   d. 21 [ ]   e. None of the above [ ]

7. Which of the following can never the negative value?

a. Variance [ ]   b. Median [ ]   c. Mean [ ]   d. Correlation Coefficient [ ]

e. Probability [ ]   f. None of the above [ ]

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

a. Mean [ ] b. Median [ ] c. Mode [ ] d. 0 [ ]
e. None of the above [ ]

9. If A and B are independent events then P (A ∩ B) is

a. P(A) [ ] b. P(B) [ ] c. P(A) + P(B) [ ] d. P(A) – P(B) [ ]
e. P(A) x P(B) [ ] f. None of the above [ ]

10. The coefficient of correlation will have positive sign when

a. X is increasing, Y is decreasing [ ]

b. Both X and Y ire increasing [ ]

c. X is decreasing, Y is increasing [ ]

d. there is no change in X and Y [ ]

SECTION B

(Total Marks: 50)

1. Find the median wage of the following distribution **(Marks: 10)**

Wages (in $)	20-30	30-40	40-50	50-60	60-70
No. of labourers	03	05	20	10	05

2. The ranks of same 16 students in Mathematics(X) and Physics(Y) are as follows.
(Marks: 10)

X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Y	1	10	3	4	5	7	2	6	8	11	15	9	14	12	16	13

Calculate the rank correlation coefficient for proficiencies of this group in Mathematics & Physics

3. (i) Two cards are drawn at random from a well shuffled pack of 52 cards. Show that the chance of drawing two aces is 1/221 **(Marks: 10)**

(ii) What is the chance that a leap year selected at random will contain 53 Sundays
(Marks: 10)

4. Samples of two types of electric light bulbs were tested for length of life and following data were obtained.   **(Marks: 10)**

	Sample Size.	Sample Mean	Sample Standard deviation
Type I	8	1234 Hrs.	36 Hrs.
Type II	7	1036 Hrs.	40 hrs.

Is the difference in the means sufficient to warrant that type I is superior to type II regarding length of life?

SECTION C

(Total Marks: 30)

1. Match and Write the following   **(10 marks total, 2 marks each)**

    a. Binomial Distribution   3 Median - 2 A. Mean

    b. Poission Distribution $\Sigma [(O_i - E_i)^2 / E_i]$

    c. Mode $SQRT. [\Sigma (x - \mu)^2] / n$

    d. Standard Deviation $e^{-\lambda} \lambda^x / x !$

    e. Chi-Square Test $^{n}C_r x p^r x q^{n-r}$

2. Short Notes (Select any **Four** questions)   **(20 marks total 5 marks each)**

(i) Describe the Stratified Random Sampling

(ii) Explain the characteristics of good estimator

(iii) What are the properties of normal distribution

(iv) Describe the disadvantages of mode.

(v) Explain the level of significance