

IGWE MOSES CAPES

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EBONYI STATE UNIVERSITY, ABAKALIKI

FACULTY OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT.
SECOND SEMESTER EXAMINATION, 2016/2017 SESSION
COURSE CODE: AGR 212 TIME: 2 HRS
COURSE TITLE: STATISTICS FOR AGRICULTURE AND FOOD 1
INSTRUCTIONS: ANSWER ALL QUESTIONS.

EXAMINATION MALPRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS A GREAT CONSEQUENCE THEREFORE ALWAYS SHUN EXAMINATION MALPRACTICE.

This involves the scientific method for collecting, organizing, summarizing, presenting data as well as drawing valid conclusions and making reasonable decisions on the basis of such analysis.

- 1. Define the following
a) statistic b) sample c) mean d) median e) probability
2) Answer YES or NO
a) The number of fish sold from EBSU cold room last year is a discrete variable
b) The amount of rainfall recorded this month of may is a discrete variable
c) Lifetime of your nokia handset is a discrete variable
d) The annual income of your neighbor is a continuous variable
e) The number of final year student in your department is a continuous variable
f) The mean height of AGR 212 FST STUDENTS is a discrete variable
g) The number of students that will write AGR 212 in the faculty of agriculture is a continuous variable
h) Your shoe size is a discrete variable
i) The number of hairs on your head is a continuous variable
j) The volume of water in a basin is a discrete variable
3) List two ways to avoid the abuse of the use of statistics
4) Write the symbols for the following
a) sample mean b) variance c) standard deviation d) population mean e) slope f) intercept g) difference between two means
5) Write the mathematical expression of the following statements:
a) The summation of the sum of 2 or more series equals the sum of their summation.
b) The square of a summation is not equal to the sum of their squares.
c) The product of 2 summations is not equal to the sum of their product.
d) The summation of a constant equals the product of that constant and the total number of occurrences.

- 6. Write the formula for calculating the following
a) mean b) variance for small sample c) variance for large sample d) standard deviation e) chi-square
7. List three methods of sampling techniques
8. Explain a.) Large sample in statistics b.) Small sample in statistics

A glass jar contains 6 red, 5 green, 8 blue and 3 yellow little colored balls. If a single ball is chosen at random from the jar. What is the probability of choosing a red ball?
p(red) = number of ways to choose red / total number of balls = 6/22 = 3/11

Handwritten notes and calculations at the bottom of the page, including 'STATISTICS SURVIVAL' watermark and various scribbles.

EBONYI STATE UNIVERSITY, ABAKALIKI
FACULTY OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT
SECOND SEMESTER EXAMINATIONS 2022/2023 COURSE CODE: AGR212 TIME: 2 HOURS
COURSE TITLE: STATISTICS FOR AGRICULTURE AND FOOD I. INSTRUCTION: ANSWER ALL QUESTIONS

"EXAMINATION MALPRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS
 A GREAT CONSEQUENCE. THEREFORE, SHUN EXAMINATION MALPRACTICE"

1. (a) Write the formulae for calculating the following:
- i. Mean using assumed class mark
 - ii. Mean using transformed deviation
 - iii. Variance for small sample (Machine formula)
 - iv. Variance for large sample (Deviation from the mean method)
 - v. Confidence interval estimates
- (b) Describe the equation of a normal curve stated as follows:
- $$f = \frac{N}{\sigma(\sqrt{2\pi})} e^{-\frac{(x - \mu)^2}{2\sigma^2}}$$
- (c) Draw a normal curve to show the following:
- i. Normal distribution where standard deviations are equal but means are different
 - ii. Normal distribution where mean, median and mode are at the same point
 - iii. Normal distribution where means are equal but standard deviations are different
- (d) Distinguish between Z - test and t - test.

2. Given the table below adapted from MS Excel:

	G	H	I	J	K	L	M	N	O	P
22	229.47	86.4	51.33	57	21.83	17	13.84	12.67	31.33	32.81
23	244.7	93.83	55	56.33	25.17	16.27	13.74	13.67	28.83	36.81
24	245.68	94.5	56.67	58.33	20.33	16.83	13.76	11.5	29	32.87
25	234.8	97.37	54	58.33	22.17	14.13	13.34	12	24.5	34.68
26	273.6	117.93	57.33	60	20.67	16.75	13.36	11.5	28.67	41.16
27	274.47	122.93	61	64.33	25.83	19.08	12.82	12.42	24.67	38.22
28	248.97	98.67	64	66.67	22.17	18.72	14.05	13.83	27.33	37.94
29	243.27	99.6	61	64.33	19.67	17.2	12.81	13	28.67	47.49
30	242.1	103.43	67.33	69	26	17.08	13.56	12.83	30.83	31.94
31	278.6	116.7	56.67	61	23	15.75	14.19	14.83	28.17	38.45

Describe the formula/procedure for analyzing the following statistic for variables G - P in all 10 observations

i. Total value	ii. Mean	iii. Median	iv. Mode
v. Highest value	vi. Lowest value	vii. Variance	viii. Standard deviation

N.C

(b) Calculate the variance and standard deviation of the distribution

$X_i = 8, 12, 4, 8, 8, 12, 12, 12, 8, 12, 12, 16, 16, 16, 12, 12, 12, 16, 30, 30, 30, 30, 30, 30, 30, 30, 30, 21, 21, 24, 24, 4, 4, 8, 12, 4, 5, 5, 5, 5, 5$

(c) Calculate the mean deviation of the following distributions:

i. $K_j = 20, 18, 10, 17, 11, 12$

ii. $Y_i = 13, 14, 18, 14, 8, 13$

3. Complete the table below

Class interval	Class mark	F_i	d_i	$F_i d_i$	U_i	$F_i U_i$
10 - 19		5				
20 - 29		11				
30 - 39		7				
40 - 49		8				
50 - 59		7				
60 - 69		3				
70 - 79		9				
80 - 89		5				

- Calculate the mean using assumed class mark of 64.5
- Calculate the mean using the transformed deviation method
- Calculate the mode
- Calculate the median
- Calculate the confidence interval (C.I) estimates

$u = \frac{d}{c}$

4. (a) Mention five statistical procedures found on the home page of OPSTAT

(b) Give three classifications of statistical softwares with examples

(c) In order to compare the durability of two paints on highway signposts, 15 signposts were made and erected indicating speed limits on the sides of high way. The order was decided and randomized. After a period of one year, reflectometer readings were obtained from each signpost. The higher the readings, the greater the reflectivity. The data are presented in the table below:

Paint	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	12.5	11.7	9.9	9.6	10.3	9.6	9.4	11.3	8.7	11.5	10.6	9.7	12.5	11.7	9.9
B	9.4	11.6	9.7	10.4	6.9	7.3	8.4	7.2	7.0	8.2	12.7	9.2	9.4	11.6	9.7

Using Group t-test, would you accept $H_0: \bar{X}_A = \bar{X}_B$ or $H_A: \bar{X}_A \neq \bar{X}_B$

Nwaka Charles
07035556494

EBONYI STATE UNIVERSITY, ABUKALIKI
FACULTY OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT
SECOND SEMESTER EXAMINATIONS (2019/2020) COURSE CODE: AGR212 TIME: 1 HOUR
COURSE TITLE: STATISTICS FOR AGRICULTURE AND FOOD I INSTRUCTION: ANSWER ALL QUESTIONS

"EXAMINATION MATERIAL PRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS A GREAT CONSEQUENCE. THEREFORE, SHUN EXAMINATION MATERIAL PRACTICE"

1. (a) Write the formula for calculating the following:
 i. Mean ii. Median for even number of observations in a distribution iii. Median for odd number of observations in a distribution iv. Mean deviation for ungrouped data
 v. Variance for small sample using machine formula.

(b) Calculate the variance and standard deviation of the distribution

$X_i = 4, 4, 8, 12, 4, 4, 8, 8, 12, 12, 12, 8, 8, 12, 12, 12, 16, 16, 16, 12, 12, 12, 16, 30, 30, 30, 30, 30, 30, 21, 21, 24, 24$

(c) Calculate the mean deviation of the following distributions:

i. $X_j = 17, 11, 12, 8, 15, 20, 18, 10$

ii. $Y_i = 14, 8, 13, 13, 14, 13, 14, 18$

2. (a) Theoretically state and prove the following rules:

i. $\left[\sum_{i=1}^n X_i \right] \left[\sum_{i=1}^n Y_i \right] = \sum_{i=1}^n [X_i Y_i]$; Given $X_i = 12, 13, 16, 15$ and $Y = 12, 14, 14, 15$

ii. $\sum_{i=1}^n X_i + Y_i = \sum_{i=1}^n X_i + \sum_{i=1}^n Y_i$; Given $X_i = 16.0, 13.0, 12.6, 11.5$ and $Y = 14.0, 13.5, 14.2, 12.2$

iii. $\left[\sum_{i=1}^n X_i \right]^2 = \sum_{i=1}^n [X_i^2]$; Given $X_i = 14, 13, 15, 12$

(b) Given $X_i = 14.5, 11.0, 17.0, 8.0, 20.0$ and $Y_i = 20.0, 7.0, 25.1, 6.0, 12.7$

What is the value of the expression $\sum X_i + Y_i$

3. (a) Complete the table below and calculate the mean using assumed class mark of 64.5.

Class interval	Class mark (X_i)	f_i	d_i	$f_i d_i$	U_i	$f_i U_i$
30-39	34.5	7	-30	-210	-3	-21
40-49	44.5	5	-20	-100	-2	-10
50-59	54.5	8	-10	-80	-1	-8
60-69	64.5	11	0	0	0	0
70-79	74.5	3	10	30	1	3
80-89	84.5	9	20	180	2	18
90-99	94.5	7	30	210	3	21
		50		30		3

(b) Calculate the mean using the transformed deviation method.

(c) Draw a normal curve to show normal distribution where:

- Mean, median and mode are at the same point
- Standard deviations are equal but means are different
- Means are equal but standard deviations are different

4. (a) Find the median of the following grouped data

Class	Frequency	CF (boundary)	CF
4-10	6	3.5-10.5	6
11-17	7	10.5-17.5	13
18-24	10	17.5-24.5	23
25-31	9	24.5-31.5	32
32-38	6	31.5-38.5	38
39-45	7	38.5-45.5	45

(b) Calculate the mode

(c) Write short note on the following

- Use of statistical methods in Agriculture and Biology
- How to avoid abuse of statistics
- Experiment
- Small sample v. Large sample

Class mean = $\frac{LC + UQ}{2}$

$\bar{x} = \bar{x} - A$ where $A = 64.5$

$U = \frac{d}{c}$ where $c = 10$

$\bar{x} = A + \left(\frac{\sum f_i U_i}{\sum f_i} \right) c$
 $= 64.5 + \left(\frac{3}{50} \right) c$
 $= 64.5 + 0.06 \times 10$
 $= 64.5 + 0.60$
 $= 65.10$

Cal for M.L.A.C.M.
 $\bar{x} = A + \left(\frac{\sum f_i U_i}{\sum f_i} \right) c$
 $= 64.5 + \left(\frac{3}{50} \right) 10$
 $= 65.10$

$C = uc -$

$24.5 + \left(\frac{-1}{-8+3} \right) \times 11 = 24.5 + \left(\frac{-1}{-5} \right) \times 11$

mode

"EXAMINATION MALPRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS A GREAT CONSEQUENCE, THEREFORE SHUN EXAMINATION MALPRACTICE"

1 (a) Given X to be 14.5, 11.0, 12.2, 17.2, 8.0 and 20.7; Y to be 20.0, 7.6, 9.9, 25.1, 6.3 and 12.7; what is the value of the expression?

$$\sum_{i=1}^6 X_i + Y_i$$

b. Write the formula for calculating the following:

- i. Mean using assumed class mark
 - ii. Mean using transformed deviation
 - iii. Variance for small sample (Mean deviation method)
 - iv. Variance for large sample (Machine formula)
 - v. Confidence interval estimates
- c. Given the equation of a normal curve to be: $f = \frac{N}{\sigma(\sqrt{2\pi})} e^{-\frac{(y-\mu)^2}{2\sigma^2}}$; define all parameters

d. Draw a normal curve to show the following:

- i. Normal distribution where mean, median and mode are at the same point
- ii. Normal distribution where standard deviations are equal but means are different
- iii. Normal distribution where means are equal but standard deviations are different

e. Distinguish between Population and Sample.

2. (a) Mention and explain five ways by which a representative sample may be obtained.

(b) Calculate the variance and standard deviation of the following: 6, 6, 10, 14, 6, 6, 10, 10, 14, 14, 14, 10, 14, 14, 14, 18, 18, 18, 14, 14, 14, 18, 32, 32, 32, 32, 32, 32, 32, 32, 23, 23, 26, 26

(c) Calculate the mean deviation of the sets of numbers below:

i. 19, 13, 14, 10, 17, 22, 20, 12

ii. 16, 10, 15, 15, 16, 15, 16, 20

3 (a) Interpret and prove the following rules:

i. $\left[\sum_{i=1}^n X_i \right] \left[\sum_{i=1}^n Y_i \right] \neq \sum_{i=1}^n [X_i Y_i]$ Given X: 15, 16, 19, 18 and Y: 15, 17, 17, 18

iii. $\sum_{i=1}^n X_i + Y_i = \sum_{i=1}^n X_i + \sum_{i=1}^n Y_i$; Given X: 19.0, 16.0, 15.6, 14.5 and Y: 17.0, 16.5, 17.2, 15.2

iv. $\left[\sum_{i=1}^n X_i \right]^2 \neq \sum_{i=1}^n [X_i]^2$ Given X: 17, 16, 18 and 15

d. Explain the four properties of a normal distribution

1. Define Skewness and Kurtosis

2. Write short notes on the following:

- i. Types of Hypotheses
- ii. Probability
- iii. Error Margin
- iv. One-tailed and Two-tailed test
- v. Types of Error

4 a. Complete the table below

Class Interval	Class mark	F_i	d_i	$F_i d_i$	U_i	$F_i U_i$
30 - 39		11				
40 - 49		7				
50 - 59		8				
60 - 69		7				
70 - 79		3				
80 - 89		9				
90 - 99		5				

- a. Calculate the mean using assumed class mark of 64.5
- b. Calculate the mean using the transformed deviation method
- c. Calculate the mode
- d. Calculate the median
- e. Calculate the confidence interval (C.I) estimates.

1a. Find the variance and standard deviation of the following: 4, 4, 8, 12, 4, 4, 8, 8, 12, 12, 12, 8, 8, 12, 12, 12, 16, 16, 16, 12, 12; 12, 16, 30, 30, 30, 30, 30, 30, 30, 30, 21, 21, 24, 24

1b. Find the mean deviation of the sets of numbers below:

- i. 12, 6, 7, 3, 15, 10, 18, 5
- ii. 9, 3, 8, 8, 9, 8, 9, 18

2a. Prove the following rules with examples

i.
$$\left[\sum_{i=1}^n X_i \right] \left[\sum_{i=1}^n Y_i \right] \neq \sum_{i=1}^n [X_i Y_i]$$

iii.
$$\sum_{i=1}^n X_i + Y_i = \sum_{i=1}^n X_i + \sum_{i=1}^n Y_i$$

iv.
$$\left[\sum_{i=1}^n X_i \right]^2 \neq \sum_{i=1}^n [X_i^2]$$

$$\sum_{i=1}^n (X_i - \bar{X})^2 = \sum X^2 - \frac{(\sum X)^2}{n}$$

Same sample -
 Large n $\sum_{i=1}^n (X_i - \bar{X})^2$ or $\sum_{i=1}^n X_i^2 - \frac{(\sum X_i)^2}{n}$

2b. Given X to be 9.5, 6.0, 12.0, 3.0 and 15.0; Y to be 10.0, 2.6, 25.1, 1.3 and 7.7; what is the value of the expression?

$$\sum_{i=1}^5 X_i + Y_i$$

3a. Complete the Table below and calculate the assumed mean using assumed class mark of 64.5

Class Interval	Mid Point	F	d, X-A	F _d	U, X-A	F _U
30-39	34.5	4	-20	-120	-5	-12
40-49	44.5	7	-20	-140	-1	-4
50-59	54.5	11	-10	-110	1	-11
60-69	64.5	12	0	0	0	0
70-79	74.5	6	10	60	1	6
80-89	84.5	6	20	120	2	12
90-99	94.5	5	30	150	3	15
Σ		51		-40		21

3b. Calculate the mean using the transformed deviation method

4a. Find the median of the following:

Class	frequency	Class boundaries	CF
4-10	4	3.5 - 10.5	4
11-17	8	10.5 - 17.5	12
18-24	14	17.5 - 24.5	26
25-31	11	24.5 - 31.5	37
32-38	5	31.5 - 38.5	42
39-45	3	38.5 - 45.5	45

4b. Calculate the mode

Median = $L + \left(\frac{\frac{N}{2} - CF}{F} \right) C$

Median class = N

EBONYI STATE UNIVERSITY, ABAKALIKI
FACULTY OF AGRICULTURAL AND NATURAL RESOURCES MANAGEMENT
DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY.

2nd Semester 2017/2018 Examination:
 AGR 212: Statistics for Agriculture and Food 1

31st August, 2018
 Time Allowed: 2h.

INSTRUCTION

Answer all questions

probability is a branch of mathematics that studies the possible outcomes of given events

1. List the different methods of sampling [5 Marks]
2. A sample of five executives received the following bonuses last year (₦): 14.0, 15.0, 16.9 and 15.0. Determine the average bonus given last year. [4 Marks]
3. The scores of students' participation in a quiz are: 19, 3, 10, 7, 19, 15, 80, 11, 4, 8, 16 and 17. Find the range, median and mode [6 Marks]
4. Find the standard deviation and variance of the following numbers 24, 21, 20, 16, 12, 8, and 4 with frequencies, 2, 9, 4, 10, 6, and 4 respectively. [12 Marks]
5. Define the following: (i. Statistics (ii. Statistic (c. Probability [9 Marks, 3 Marks each]
6. Write the formula for calculating the following: [6 Marks, 2 Marks each]
 - a) Mean b. Median for even number, (c. Median for odd number
7. ~~50~~ is the range of the following set of numbers, 80, 94, 98, 98, 102, 111, 144, and 130
 (a) 59. (b) 30. (c) 70. (d) 98 [2 Marks]

In the following questions answer YES or NO. CANCELLATION IS NOT ALLOWED [26 Marks, 2 Marks each]

8. The mean is always used for interval and ratio data (YES/NO)
9. The average is affected by the extreme measurements or counts unlike the median or mode (YES/NO)
10. Median is not necessarily affected by the extreme values in a given distribution (YES/NO)
11. If the null-hypothesis is rejected when it should have been accepted, we commit TYPE I ERROR (YES/NO).
12. If the null-hypothesis is accepted when it should have been rejected, we commit TYPE TWO ERROR (YES/NO).
13. The number of fish sold from the Animal Science cold room last year is a continuous variable (YES/NO).
14. The amount of rainfall recorded on the month of MAY from our metrological centre is a discrete variable (YES/NO).
15. Lifetimes of your Smartphone is a discrete variable (YES/NO).
16. The number of Final year students' projects in your department is a continuous variable (YES/NO).
17. The annual income of your parent is a discrete variable (YES/NO).
18. Z-test and T-test are both used as parametric tests (YES/NO).
19. Z-test and T-test can be used interchangeably (YES/NO).
20. Chi-square is a non-parametric test (YES/NO).

Mean

$$\bar{x} = \frac{\sum x_i}{n}$$
for odd N

Good luck: Dr. G.J. Ikegwe

$$\frac{\sum f(x - \bar{x})^2}{\sum f}$$

80 - 130

EBONYI STATE UNIVERSITY ABAKALIKI

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT

SECOND SEMESTER EXAMINATION 2004/2005 SESSION

COURSE CODE: AGR 212
 COURSE TITLE: Statistics for Agriculture and Food I
 DURATION: 2 1/2 Hours
 INSTRUCTION: Attempt all Questions

"EXAMINATION MALPRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS A GREAT CONSEQUENCE, THEREFORE SHUN EXAMINATION MALPRACTICE"

1) Define the following:
 (a) Statistics
 (b) Statistic
 (c) Sample
 (d) Discrete Variable
 (e) Distribution

Statistics can be defined as the scientific method of collecting, organizing, summarizing, presenting, as well as analyzing data and drawing valid conclusion from such information.

2) (a) Define $\sum_{i=1}^n X_i$ by giving an example... *as mean subtraction of $(11 X_i)$ from $(10 X_i)$*
 (b) Assuming that "X" takes the following values: 16, 10, 15, 5, 4, 6, 5, 9, 8, and 7. Find the mean by stating the correct formula.
 (c) Arrange the values in question no. 2b above in ascending order and solve the following problem:

(i) $\sum_{i=1}^3 X_i + \dots + \sum_{i=1}^5 X_i$

(ii) $\sum_{i=1}^5 X_i - \dots - \sum_{i=1}^8 X_i$

(iii) $\sum_{i=1}^7 X_i + \dots + \sum_{i=1}^9 X_i$

(iv) State 3 characteristics of mean you know.

3) Given the values below, find the median

CLASS INTERVAL	FREQUENCY
4 - 10	3
11 - 17	5
18 - 24	11
25 - 31	14
32 - 38	8
39 - 45	4

Using the table below find the mode

CLASS INTERVAL	FREQUENCY
5 - 5	8
6 - 10	10
11 - 15	16
16 - 20	12
21 - 25	7
26 - 30	0

Handwritten calculations:
 $0.5 - 0.5$
 $5.7 - 1.5$
 $1 - 11.5$
 7

Handwritten notes:
 n are 9 months
 0 1 2 3 4 5 6 7

Handwritten notes:
 Am heavy work
 like baby bowls
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EBONYI STATE UNIVERSITY, ABAKALIKI
FACULTY OF AGRICULTURAL AND NATURAL RESOURCES MANAGEMENT
DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

2nd Semester 2017/2018 Examination:
AGR 212: Statistics for Agriculture and Food 1

31st August, 2018
Time Allowed: 2h.

INSTRUCTION

Answer all questions

1. List the different methods of sampling [5 Marks]
2. A sample of five executives received the following bonuses last year (₦): 14.0, 15.0, 17.0, 16.0 and 15.0. Determine the average bonus given last year. [4 Marks]
3. The scores of students' participation in a quiz are: 19, 3, 10, 7, 19, 15, 80, 11, 4, 8, 16 and 17. Find the range, median and mode [6 Marks]
4. Find the standard deviation and variance of the following numbers 24, 21, 20, 16, 12, 8, and 4 with frequencies, 2, 9, 4, 10, 6, and 4 respectively. [12 Marks]
5. Define the following: (i. Statistics (ii. Statistic (c. Probability [9 Marks, 3 Marks each]
6. Write the formula for calculating the following: [6 Marks, 2 Marks each]
 - a) Mean b. Median for even number. (c. Median for odd number
7. ----- is the range of the following set of numbers, 80, 94, 98, 98, 102, 111, 114, and 130 50. (b. 30. (c. 70. (d. 98 [2 Marks]
8. For the following questions answer YES or NO. CANCELLATION IS NOT ALLOWED [26 Marks, 2 Marks each]
 9. The mean is always used for interval and ratio data (YES/NO)
 10. The average is affected by the extreme measurements or counts unlike the median or mode (YES/NO)
 11. Median is not necessarily affected by the extreme values in a given distribution (YES/NO)
 12. If the null-hypothesis is rejected when it should have been accepted, we commit TYPE I ERROR (YES/NO).
 13. If the null-hypothesis is accepted when it should have been rejected, we commit TYPE TWO ERROR (YES/NO).
 14. The number of fish sold from the Animal Science cold room last year is a continuous variable (YES/NO).
 15. The amount of rainfall recorded on the month of MAY from our metrological centre is a discrete variable (YES/NO).
 16. Lifetimes of your Smartphone is a discrete variable (YES/NO).
 17. The number of Final year students' projects in your department is a continuous variable (YES/NO)
 18. The annual income of your parent is a discrete variable (YES/NO).
 19. Z-test and T-test are both used as parametric tests (YES/NO).
 20. Z-test and T-test can be used interchangeably (YES/NO).
 21. Chi-square is a non-parametric test (YES/NO).

This week 3 courses AGR 212, ANS 212 COM 212

41013
day

ANS 212 10:00am - 11:00am, AGR 212 - 10:00am - 11:00am, COM 212 11:00am - 12:00pm

FACULTY OF AGRICULTURAL AND NATURAL RESOURCES MANAGEMENT
DEPARTMENT OF SOIL SCIENCE AND ENVIRONMENTAL MANAGEMENT

EBONYI STATE UNIVERSITY, ADAKALIKI.

SECOND SEMESTER 2009/2010 SESSION EXAMINATION

COURSE CODE: ^{NOT} 212; COURSE TITLE = STATISTICS FOR AGRICULTURE AND FOOD

TIME ALLOWED: 2 HOURS

INSTRUCTION: ATTEMPT ALL QUESTIONS

1. Define the following statistical terms

- a. Statistics - It is the collection of data or information on any given subject
- b. Datum - It is an assumption or determine fact from which decision is made or conclusions drawn from
- c. Population - It is a series of measurement or count of a single variable taken on all the specified to be the population
- d. Sample - It is a set of measurement that constitute part of population
- e. Variable - It is a symbol such as X, Y, A, or C that can assume any of a possible values

2. Prove the following rules

A. The first rule which states that the summation of the sum of 2 or more series equals the sum of the summation thus

$$\sum_{i=1}^N (x_i + y_i) = \sum_{i=1}^N x_i + \sum_{i=1}^N y_i$$

b. The third rule which states that the product of 2 summation is not equal to the sum of the products $(\sum_{i=1}^N x_i)(\sum_{i=1}^N y_i) \neq \sum_{i=1}^N (x_i y_i)$

Calculate the median, mode and frequency of the following 35, 36, 36, 36, 37, 37, 38, 38, 38, 38, 39, 39, 39, 39, 39, 39, 39, 39, 39

Write the following in full

- a. $\frac{1}{2}$ - Probability
- b. $\frac{1}{2}$ - degree of freedom
- c. $\frac{1}{2}$ - direct population

Complete the following ANOVA table

DFM	1		
Treatment	2	10.51	60.50
Error	4	0.178	ns
Total	6		

Prepare the ANOVA table for the following set of data from a randomized complete block design experiment.

Block	V1	V2	V3	V4	V5	Total	mean
I	4.6	6.4	4.9	5.9	3	30.6	6.12
II	5.1	10.7	8.1	8.7	7	41.5	8.3
III	4.8	10.1	10.7	9.5	12.4	47	9.4
IV	5.5	10.6	8.2	9.7	11.5	45.5	9.1
Total	20	37.2	32.6	33.8	40.4	164.6	32.92
Mean	5	9.3	8.15	8.45	10.1	41.5	8.23

Comment on your result.

5.1
4.8
5.5

Common

Statistical significance is a set of measurement or count taken on all units specified to be taken. The entered numbers of student in even one student or taking measurement.

Handwritten notes and calculations on the right side of the page, including a vertical list of numbers: 5.1, 4.8, 5.5, and some other scribbles.

Mary - 2.

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mean $\bar{X} = \frac{\sum X}{N}$

FACULTY OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT.

SECOND SEMESTER EXAMINATION, 2016/2017 SESSION

COURSE CODE: AGR 212 TIME: 2HRS

COURSE TITLE: STATISTICS FOR AGRICULTURE AND FOOD 1

INSTRUCTIONS: ANSWER ALL QUESTIONS.

EXAMINATION MALPRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS A GREAT CONSEQUENCE THEREFORE ALWAYS SHUN EXAMINATION MALPRACTICE.

1. Define the following

- a) statistic b) sample c) mean d) median e) probability (10mks; 2mks each)

2) Answer "YES" or "NO"

- a) The number of fish sold from EBSU cold room last year is a discrete variable **YES**
- b) The amount of rainfall recorded this month of may is a discrete variable **NO**
- c) Lifetime of your nokia handset is a discrete variable **NO**
- d) The annual income of your neighbor is a continuous variable. **YES**
- e) The number of final year student in your department is a continuous variable **NO**
- f) The mean height of AGR 212 FST STUDENTS is a discrete variable **NO**
- g) The number of students that will write AGR 212 in the faculty of agriculture is a continuous variable **NO**
- h) Your shoe size is a discrete variable **YES NO**
- i) The number of hairs on your head is a continuous variable **YES NO**
- j) The volume of water in a basin is a discrete variable (10mks; 1mk each) **NO**

mean $\bar{X} = \frac{\sum X}{N}$
variance $\frac{\sum (X - \bar{X})^2}{N}$

3) List two ways to avoid the abuse of the use of statistics (4mks; 2 mks each)

4) Write the symbols for the following

- a) sample mean b) variance c) standard deviation d) population mean e) slope f) intercept g) a difference between two means (7mks)

5) Write the mathematical expression of the following statements:

- a) The summation of the sum of 2 or more series equals the sum of their summation. $\sum_{i=1}^n (X_i + Y_i) = \sum_{i=1}^n X_i + \sum_{i=1}^n Y_i$
- b) The square of a summation is not equal to the sum of their squares. $(\sum_{i=1}^n X_i)^2 \neq \sum_{i=1}^n (X_i)^2$
- c) The product of 2 summations is not equal to the sum of their product. $(\sum_{i=1}^n X_i)(\sum_{i=1}^n Y_i) \neq \sum_{i=1}^n (X_i Y_i)$
- d) The summation of a constant equals the product of that constant and the total number of occurrences. (12mks; 3mks each) $\sum_{i=1}^n K_i = f \cdot K_i$

6) Write the formula for calculating the following

- a) mean b) variance for small sample c) variance for large sample d) standard deviation e) chi-square f) Null hypothesis g) T-test h) mean deviation i) alternative hypothesis (18mks; 2mks each)

7) List three methods of sampling techniques (3mks; 1 mk each)

8) Explain a.) Large sample in statistics b.) Small sample in statistics (2mks)

9. A glass jar contains 6 red, 5 green, 8 blue and 3 yellow little colored balls. If a single ball is chosen at random from the jar. What is the probability of choosing

- a) a red ball
- b) a green ball
- c) a blue ball
- d) A yellow ball (4mks; 1mk each)

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May 10

10

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$\mu = \frac{\sum X}{N}$

SCHOOL OF AGRICULTURE AND NATURAL RESOURCES MANAGEMENT.

SECOND SEMESTER EXAMINATION, 2016/2017 SESSION

COURSE CODE: AGR 212 TIME: 2 HRS

COURSE TITLE: STATISTICS FOR AGRICULTURE AND FOOD 1

INSTRUCTIONS: ANSWER ALL QUESTIONS.

EXAMINATION MALPRACTICE IS AN OFFENCE IN EBONYI STATE UNIVERSITY AND ATTRACTS A GREAT CONSEQUENCE THEREFORE ALWAYS SHUN EXAMINATION MALPRACTICE.

1. Define the following

- a) statistic b) sample c) mean d) median e) probability (10mks; 2mks each)

mean $\bar{X} = \frac{\sum X}{N}$
variance $s^2 = \frac{\sum (X - \bar{X})^2}{N}$

2) Answer "YES or "NO

- a) The number of fish sold from EBSU cold room last year is a discrete variable YES
b) The amount of rainfall recorded this month of may is a discrete variable NO
c) Lifetime of your nokia handset is a discrete variable NO
d) The annual income of your neighbor is a continuous variable YES
e) The number of final year student in your department is a continuous variable NO
f) The mean height of AGR 212 FST STUDENTS is a discrete variable NO
g) The number of students that will write AGR 212 in the faculty of agriculture is a continuous variable YES
h) Your shoe size is a discrete variable YES NO
i) The number of hairs on your head is a continuous variable YES NO
j) The volume of water in a basin is a discrete variable (10 mks; 1mk each) NO

3) List two ways to avoid the abuse of the use of statistics (4mks; 2 mks each)

4) Write the symbols for the following: a) sample mean b) variance c) standard deviation d) population mean e) slope f) intercept g) a difference between two means (7mks)

5) Write the mathematical expression of the following statements:

- a) The summation of the sum of 2 or more series equals the sum of their summation. $\sum (X+Y) = \sum X + \sum Y$
b) The square of a summation is not equal to the sum of their squares. $(\sum X)^2 \neq \sum (X^2)$
c) The product of 2 summations is not equal to the sum of their product. $(\sum X)(\sum Y) \neq \sum (XY)$
d) The summation of a constant equals the product of that constant and the total number of occurrences. $\sum K = f \cdot K$

6) Write the formula for calculating the following

- a) mean b) variance for small sample c) variance for large sample d) standard deviation e) chi-square f) null hypothesis g) T-test h) mean deviation i) alternative hypothesis (18mks; 2mks each)

7) List three methods of sampling techniques (3mks; 1 mk each)

8) Explain a.) Large sample in statistics b.) Small sample in statistics (2mks)

9. A glass jar contains 6 red, 5 green, 8 blue and 3 yellow little colored balls. If a single ball is chosen at random from the jar. What is the probability of choosing

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