



**ALUPE UNIVERSITY
COLLEGE**

... Bastion of Knowledge...

P. O.Box 845-50400 Busia(K)
principal@auc.ac.ke
Tel: +254 741 217 185
+254 736 044 469
off Busia-Malaba road

**OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH**

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

**FOURTH YEAR SECOND SEMESTER SUPPLEMENTARY
EXAMINATION**

**FOR THE DEGREE OF BACHELOR OF SCIENCE (APPLIED
STATISTICS WITH COMPUTING)**

COURSE CODE: STA 432

COURSE TITLE: STATISTICS FOR NATIONAL PLANNING

DATE: 9TH JUNE, 2022

TIME: 0900 – 1200 HRS

INSTRUCTION TO CANDIDATES

- **SEE INSIDE**

THIS PAPER CONSISTS OF FOUR PRINTED PAGES PLEASE TURN OVER

REGULAR: MAIN EXAM**STA 432: STATISTICS FOR NATIONAL PLANNING****STREAM: ASC****DURATION: 3 hours****INSTRUCTION TO CANDIDATES**Answer **ALL** questions from section A and any **THREE** from section B.**SECTION B [31 Marks]****QUESTION ONE [15 Marks]**

- a) Define clearly the following terms
- | | |
|---------------------------|-----------|
| i) Data | [1 Mark] |
| ii) Score | [1 Mark] |
| iii) Ombrothermic Diagram | [2 Marks] |
| iv) Health statistics | [1 Mark] |
- b) Explain five importance of agricultural census/ surveys. [5 Marks]
- c) Explain three uses Statistics in the Health Industry. . [3 Marks]
- d) Explain the difference between Agricultural surveys and Agricultural census? [2 Marks]

QUESTION TWO [16 Marks]

- a) Explain the difference between theoretical econometrics and applied econometrics [4 Marks]
- b) Discuss three functions of econometrics. [3 Marks]
- c) Explain the difference between simple and multiple regression. [2 Marks]
- d) During the month of November a hospital performed 275 operations, and 269 patients were operated on. There were 2 deaths that occurred within 10 days of surgery, and 1 that occurred after 10 days.
Calculate the Postoperative Death Rate. [4 Marks]
- e) Discuss two methods used in Parameter estimation of a regression model. [3 Marks]

SECTION B [39 Marks] Answer any THREE questions]

QUESTION THREE [13 Marks]

- a) For 5 pairs of observations the following results are obtained $\sum X=15, \sum Y=25, \sum X^2 =55, \sum Y^2 =135, \sum XY=83$ Find the equation of the lines of regression and estimate the value of X on the first line when $Y=12$ and value of Y on the second line if $X=8$. [8 Marks]
- b) List five importance of Case control study in health statistics. [5 Marks]

QUESTION FOUR [13 Marks]

- a) Discuss the following terms as used in hospital statistics.
- i. Average length of stay [1Mark]
 - ii. Percentage of occupancy of inpatient beds [2Marks]
 - iii. Bed Turnover Interval [2Marks]
 - iv. Bed Turnover Rate [2Marks]
 - v. Maternal Death Rate [1Marks]
- b) There are two series of index numbers P for price index and S for stock of the commodity. The mean and standard deviation of P are 100 and 8 and of S are 103 and 4 respectively. The correlation coefficient between the two series is 0.4. With these data obtain the regression lines of P on S and S on P . [5Marks]

QUESTION FIVE [13 Marks]

- a) Discuss three disadvantages of case control study. [3Marks]
- b) The following table shows the sales and advertisement expenditure of a form.

	Sales	Advertisement expenditure (Rs. Crores)
Mean	40	6
SD	10	1.5

- Coefficient of correlation $r= 0.9$. Estimate the likely sales for a proposed advertisement expenditure of Rs. 10 crores. [6Marks]
- c) Distinguish between case control studies and Cross sectional Studies. [4Marks]

QUESTION SIX [13 Marks]

- a) List two Purpose/Objective of Agricultural Statistics. [2Marks]
- b) Explain three key content of an econometric model. [3Marks]
- c) The aggregation problems arise when aggregative variables are used in econometric functions. List and explain four aggregative variables. [8Marks]

QUESTION SEVEN [13 Marks]

- a) List and explain four scale of measurement used in statistics. [4Marks]
- b) Find the means of X and Y variables and the coefficient of correlation between them from the following two regression equations: [5Marks]
 $2Y - X - 50 = 0$
 $3Y - 2X - 10 = 0.$
- c) Discuss three Statistical methods used for estimations and forecasting of agriculture statistics. [3Marks]
- d) What is Dummy variable data in econometrics? [1Mark]
