

THIRD YEAR FIRST SEMESTER EXAMINATION

(FOR 2016/2017 ACADEMIC YEAR)

FOR THE DEGREE IN BACHELOR OF SCIENCE AGRICULTURE/HORTICULTURE

COURSE CODE: CRS 335

COURSE TITLE: RESEARCH METHODS

INSTRUCTIONS TO CANDIDATES

Answer question **ONE** and any other **THREE** questions

Duration: **3 HOURS**

QUESTION ONE

- Discuss why research methods is important in Agricultural sciences. (4Marks)
- Outline measures you can put in place to reduce experimental error. (5Marks)
- What is type 1 error and how does it occur in biometrics. (4Marks)
- Outline the following terminologies as used in research methods: treatment, experiment unit, Categorical, analysis of variance, t-test, CV. (12Marks)

QUESTION TWO

(15 Marks)

Discuss important considerations to make when designing a research project

- Objective
- Location
- Data collection methods
- Data analysis protocol and data presentation

QUESTION THREE

The following data was obtained from votes casted in party preliminaries for a political office in Migori County in 8 sub-counties. Determine if the voting pattern was the same for men and women across the 8 sub-counties. (15 Marks)

Region	1	2	3	4	5	6	7	8
Men	200	250	150	185	112	85	50	45
Women	210	90	200	170	190	120	148	150

QUESTION FOUR

- a. Discuss 3 major ways of presenting data. (3 marks)
- b. The following data was obtained from bacterial growth conducted in the laboratory on 3 cultures A, B and C which represented 3 strains of bacteria. Conduct and present ANOVA table and determine if the means of bacterial strains are so different. (10 marks)

Replicate	A	B	C
1	23	42	47
2	36	26	43
3	31	47	43
4	33	34	39

- c. Calculate the CV of the experiment. (2 marks)

QUESTION FIVE

The following partially filled analysis of variance table illustrates result from agronomy experiment testing grain yield of rice at six seeding rates (Kg/ha) conducted at 4 intervals. The mean yield of 4.95t/ha was obtained and a CV of 6.97%

Source of variation	df	Sum of squares	Mean squares	F
Rep		1.9650		
Treatment		1.2675		
Error				
Total		5.0200		

- a) Complete the table below (6 marks)
- b) Calculate the pooled standard error (5 marks)
- c) State the most likely experimental design used in this study and give its model. (4 marks)