

EGERTON



UNIVERSITY

**UNIVERSITY EXAMINATIONS  
REGULAR NJORO CAMPUS**

**FIRST SEMESTER, 2017/2018 ACADEMIC YEAR**

**CONTINUOUS ASSESSMENT CAT 2**

**AGRO 291: STATISTICS FOR AGRICULTURE**

**STREAM: B.Sc. (AGRIC, HORT, ANSC, DRLM, AGHE, SELUM)**

**DURATION: 2 HOURS**

**EXAM DATE: 14/02/2018**

**TIME: 7-9am**

**INSTRUCTIONS**

- (i) Answer ALL questions
- (ii) Provide precise answers and use illustrations where necessary
- (iii) Scientific calculators may be used
- (iv) Statistical tables are provided

1. a. What is hypothesis testing? (2 marks)
- b. Briefly describe the stages of hypothesis testing (5 marks)
- c. The standard normal distribution is a continuous probability distribution and has five major characteristics. Briefly state any THREE of them (3 marks)
2. Differentiate between the following terms as used in Statistics for Agriculture:
  - a. Replication and randomization (2 marks)
  - b. Experimental error and experimental unit (2 marks)
  - c. One tailed and two tailed test of hypothesis (2 marks)
- d. While conducting a laboratory experiment, third year FOND students from Egerton University realized that the numbers of a particular type of bacteria in 1 ml of drinking water tended to be normally distributed with an overall mean of 85 and standard deviation of 9. What is the probability that a given 1 ml sample will contain more than 100 bacteria? (3 marks)

3. The table below gives the average height of 15 randomly selected wheat lines evaluated for resistance to leaf rust in a greenhouse at KALRO-Njoro.

NJORO BW1	NJORO BW2	KWALE	MBWEHA
17.6	18.5	16.8	17.4
18.3	18.7	16.7	16.5
17.6	17.7	16.6	16.8
	18.3	16.4	
	17.8		

- At  $\alpha = 0.01$ , are the mean heights different for the FOUR wheat varieties? (8 marks)
- Construct an ANOVA table for the data (2 marks)
- What assumptions validate procedure used in (a) above? (2 marks)