(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN; AGRICULTURE EXTENSION AND EDUCATION, AGRICULTURE ECONOMICS, BIOLOGY AND BIORESOURCE MANAGEMENT AND CONSERVATION

COURSE CODE: ARE 321

COURSE TITLE: RESEARCH METHODS

DATE: 4TH OCTOBER 2021   **TIME:** 9 -11 AM

INSTRUCTIONS TO CANDIDATES
Answer Question One and Any other TWO (2)

TIME: 2 Hours

This Paper Consists of **2 Printed Pages**. Please Turn Over. ▶

QUESTION ONE: (COMPULSORY) (30 MKS)

a) List any FOUR points on the importance of research (4 MKS)
b) Explain the difference between qualitative and quantitative research. (5 marks)
c) Explain the difference between the conceptual and the theoretical framework. (4 marks)
d) Explain what is meant by SMART objectives in research. (5 MARKS)
e) Distinguish between the following terms:
   (i)   Survey and Experimentation (4marks)
   (ii)   Primary and Secondary data (2marks)
   (iii) Experimentation and Innovation (4marks)

f) Identify TWO sources of primary agricultural data (2marks)

QUESTION TWO

a) As a researcher, you wish to investigate the COVID-19 effects on the socio-economic of Kibabii staff in the first half of the year 2020. One of the key areas to guide your study are;
i.   Basic information
ii.   Effects on the Social life among staff
iii.   Effects on the economic aspect of life among staff
Write a research questionnaire of FIVE questions that will guide your study under objectives (ii) and (iii) above. (10 Marks)

b) Discuss FIVE important concepts relating to Research Design. (10 MARKS)

QUESTION THREE

a) Discuss FIVE characteristics of a hypothesis (10 MARKS)
b) Outline FIVE factors to consider when selecting a research design to use (10 MARKS)

QUESTION FOUR

Data below is from a study carried out to investigate whether there is a relationship between milk produced in the morning and evening. Using the data, determine whether there is a relationship between the morning and evening quantity of milk produced. (20 MARKS)

TIME	MILK (Liters)									
Morning (x)	8.2	9.6	7.0	9.4	10.9	7.1	9.0	6.6	8.4	10.5
Evening (y)	8.7	9.6	6.9	8.5	11.3	7.6	9.2	6.3	8.4	12.33

QUESTION FIVE

a) Outline the TEN process steps in research (10 MARKS)
b) Outline FIVE main common flaws in research process (10 MARKS)

KIBU observes ZERO tolerance to examination cheating

$CF = \dfrac{T^2}{N}$	$CF = \dfrac{(\sum x)^2}{(rn)}$	$E = \dfrac{R \times C}{N}$
$CF = \dfrac{G^2}{rt}$	$MST = \dfrac{SST}{df(T)}$	$\chi 2 = \dfrac{\Sigma(O-E)^2}{E}$
$SST = \dfrac{\sum(T)^2}{(r)} - CF$	$S^2 = \dfrac{\left(\sum x^2 - \frac{(\sum x)^2}{n}\right)}{(n-1)}$	$\rho = 1 - \dfrac{6\sum D^2}{N^3 - N}$
$SED = Sp - \{\sqrt{\left[\dfrac{1}{n1} + \dfrac{1}{n2}\right]}\}$	$S^2 = \dfrac{\left(\sum d^2 - \frac{(\sum d)^2}{n}\right)}{(n-1)}$	$Sxy = n\sum xy - \sum x\sum y$
$Sxx = n\sum x^2 - (\sum x)^2$	$Syy = n\sum y^2 - (\sum y)^2$	$r = \dfrac{Sxy}{\sqrt{Sxx\ Syy}}$
$S^2 = \dfrac{\left(\sum d^2 - \frac{(\sum d)^2}{n}\right)}{(n-1)}$	$c_{\text{ritical}} = t(_{(n-1),\ }{}^{\alpha}/_2)$	$\chi 2 = \dfrac{\Sigma(O-E)^2}{E}$
$SED = \dfrac{S}{\sqrt{n}}$	$\mathbf{Sp = \sqrt{S^2 p}}$	$S^2 = \dfrac{\left(\sum d^2 - \frac{(\sum d)^2}{n}\right)}{(n-1)}$
$\mathbf{SE = \dfrac{\sigma}{\sqrt{n}}}$	$\%CV = \sqrt{\dfrac{MS}{\overline{X}}} \times 100\%$	$SED = \sqrt{\dfrac{2MSE}{r}}$