

1st SEM.2010/2011



**UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION PAPER**

COURSE CODE: ABE 305

TITLE OF PAPER: - RESEARCH METHODS

BSc. AGRICULTURAL & BIOSYSTEMS ENGINEERING YEAR 3

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: NONE

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO
OTHER QUESTIONS.**

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GRANTED BY THE CHIEF INVIGILATOR**

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SECTION ONE: COMPULSORY

QUESTION 1

- (a) Briefly discuss the ten (10) major sections of a scientific paper prepared for publication in a scientific journal and explain the major features of each section
(30 Marks)
- (b) Contrast the following pairs of terminologies used in research:
- i. population *versus* population sample
 - ii. Research problem *versus* research hypothesis
 - iii. Independent variable *versus* dependent variable
 - iv. Blocking *versus* replication
 - v. Target population *versus* sample population
- (10 Marks)

SECTION II: ANSWER ANY TWO QUESTIONS

QUESTION 2

- (a) Describe the circumstances that would make the following experimental designs appropriate;
- i. Completely Randomised Design (5 Marks)
 - ii. Randomized Complete Block Design (5 Marks)
 - iii. Split-Plot Design (5 Marks)
- (b) Describe five (5) fundamentals of research ethics (15 Marks)

QUESTION 3

- (a) Describe the nominal, ordinal and cardinal levels of measurement. (15 Marks).
- (b) Giving examples, discuss the differences between fundamental (pure) research and applied research. (10 Marks).
- (c) Briefly discuss what you understand by randomisation (5 Marks)

QUESTION 4

- (a) Briefly discuss what you understand by literature review and explain the importance of this component in research. (10 marks)
- (b) List and briefly describe simple random sampling and stratified random sampling methods used in the probability sampling process (10 Marks).
- (c) Briefly discuss the five (5) basic characteristics of a well formulated specific research objective (10 marks)