UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER

PROGRAMME: AGRICULTURAL EDUCATION YEAR 3

COURSE CODE: AEE 301

TITLE OF PAPER: EDUCATIONAL RESEARCH METHODS

TIME ALLOWED: THREE (3) HOURS

INSTRUCTION: ANSWER ALL (4) QUESTIONS

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AEE 301 MAIN EXAMINATION

QUESTION 1

a. Write short notes on each of the following technical terms or concepts that are used in educational research and statistics. Provide brief answers illustrating your understanding of each term or concept.
   i. Validity
   ii. Reliability
   iii. Theoretical framework
   iv. Conceptual framework
   v. Triangulation
   vi. Delphi Technique
   vii. Ex post facto
   viii. Alpha level
   ix. Directional hypothesis
   x. Sample selection   (20 Marks)

b. Explain why **theoretical** and **conceptual frameworks** are important in writing a research proposal in Agricultural Education.

                                                          (05 Marks)
                                                          [25 Marks]

QUESTION 2

Identify and explain, in a Tabular format, **Five** major criteria for assessing a research proposal in Agricultural Education and Extension

                                                          [25 Marks]

QUESTION 3

a. Describe **Four** major uses of research or scientific inquiry (8 Marks)

b. A researcher in the school of excellence conducted a study on Students academic performance in using Teaching Method A and Teaching Method B in Science 101 in Swaziland. Among the students, there were males and females, varied age groups, from single and married parents, parents with varied educational levels, and from both rural and urban backgrounds. From this study, identify the following:

   i. Independent variable (2 Marks)
   ii. Dependent variable (2 Marks)
   iii. Rival Independent Variables (2 Marks)
   iv. If the researcher rejects the null hypothesis when it is true, What type of error is the researcher faced with? (2 Marks)
   v. If the researcher fail to reject the null hypothesis when is False, what type of error is the researcher faced with? (2 Marks)
   vi. What is the basis for rejecting a hypothesis? (2 Marks)

c. Discuss the differences between **statistical** significance and **practical** significance in research. (5 Marks)

(**25 Marks**)

QUESTION 4

A researcher has just designed a questionnaire with one domain. He is advised to pilot test it with 30 subjects. Given that:

Mean (**M**) = 6.37
Variance (**S²**) = 65.8
N = 30.0

i. Calculate the reliability co-efficient using the K-R21 formula : $r = \frac{[n\Sigma_s 2] - \mu(n-\mu)}{\Sigma_s 2(n-1)}$

Show clearly all the steps in your calculation. (15 Marks)

ii. State the purpose of pilot testing a questionnaire. (05 Marks)

iii. What is your interpretation of the reliability co-efficient? (05 Marks)

(**25 Marks**)