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UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER

PROGRAMME: BSC. IN AGRICULTURAL EDUCATION YEAR III (DIRECT AND TRANSFER)

COURSE CODE: AEE 301

TITLE OF PAPER: EDUCATIONAL RESEARCH, INSTRUMENTATION AND DATA ANALYSIS

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ALL QUESTIONS

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION 1

a. Supply the answer by writing the one-word terminology describing each definition.

Terminology	Definition
i.	The hypothesis that is stated in the research proposal.
ii.	A relational study, which substitutes for an experimental study.
iii.	Sometimes called attribute variables.
iv.	A way of conceptualization by illustrating the strategies to be used.
v.	Type of study that deliberately manipulates the independent variable.

[1 mark each=5 marks]

b. Match the terminologies in the left side with the definitions in the right side, by writing the letter answer only.

Letter answer	Terminology	Definition
	1. Manipulation	A. Sequence of level or type of X differs from one group to another
	2. Self-fulfilling prophecy effect	B. The effect that levels or categories of X_1 has on Y differ for the levels or categories of X_2
	3. Simplest factorial design	C. Subjects for research feels and acts differently
	4. Minimise the error variance	D. Another term for randomisation
	5. Treatment variations	E. Also referred to as 2x2 design
	6. Main effect	F. Treatments are as different as possible
	7. Interaction	G. Careful measurement of the variables
	8. Maximise the experimental variance	H. An observation made after the treatment is administered
	9. Control the extraneous variance	I. Effect that levels or categories of X_1 has on Y
	10. Hawthorne effect	J. Control the effects of other variables aside from the treatment
		K. Researcher "expects to see"

[2 marks each=20 marks]

[Total marks: 25]

QUESTION 2

[Total marks: 25]

Research Problem: Farming and Pursuing Agriculture as a Career**Theory:** Earlier exposure to farming is related to agriculture aptitude; i.e. the early the exposure to farming, the more profound its effects will be on liking agriculture as a potential career. Other rival variables to agriculture aptitude are age, and number of times agriculture was taken as a subject prior to entering college.

- a. State a research question, an objective, and a hypothesis for the research study above.
[2 marks each=6 marks]
- b. List four subsections title in Literature Review that you will include.
[2 marks each=8 marks]
- c. Illustrate a conceptual model for the study.
[6 marks]
- d. List five potential threats to internal validity of the study.
[5 marks]
- [Total: 25 marks]

QUESTION 3**Write the letter only for the best answer:**

- ___ 1. Which of the following is not a periodical?
A) Journals B) Scholarly newsletters C) Books D) Scholarly magazines
- ___ 2. Which of the following is a periodical?
A) On-line journals B) Books C) web site D) Scholarly newsletters
- ___ 3. A general form of listing a periodical is:
A) Author, initials (year of publication). *Title of work*. Location: Publisher.
B) Author, initials (year of publication). Title of article. Title of periodical, volume, pages.
C) Author, initials (year of publication). *Title of work*. Retrieved month, day, year, source.
D) Author, initials (year of publication). Title of chapter. In editor/s (ed/s). *Title of book* (pp. ___ - ___)
Location: Publisher.
- ___ 4. A general form of listing a non- periodical is:
A) Author, initials (year of publication). *Title of work*. Location: Publisher.
B) Author, initials (year of publication). Title of article. Title of periodical, volume, pages.
C) Author, initials (year of publication). *Title of work*. Retrieved month, day, year, source.
D) Author, initials (year of publication). Title of chapter. In editor/s (ed/s). *Title of book* (pp. ___ - ___)
Location: Publisher.

5. A general form of listing part of part of a periodical is:
- A) Author, initials (year of publication). *Title of work*. Location: Publisher.
 - B) Author, initials (year of publication). Title of article. Title of periodical, volume, pages.
 - C) Author, initials (year of publication). *Title of work*. Retrieved month, day, year, source.
 - D) Author, initials (year of publication). Title of chapter. In editor/s (ed/s). *Title of book* (pp. __ - __)
Location: Publisher.
6. A general form of listing an online document is:
- A) Author, initials (year of publication). *Title of work*. Location: Publisher.
 - B) Author, initials (year of publication). Title of article. Title of periodical, volume, pages.
 - C) Author, initials (year of publication). *Title of work*. Retrieved month, day, year, source.
 - D) Author, initials (year of publication). Title of chapter. In editor/s (ed/s). *Title of book* (pp. __ - __)
Location: Publisher.
7. Survey is:
- A) Reaching all in the large target population
 - B) Reaching all members in a small group
 - C) Drawing a sample from a population and reaching the sample
 - D) All of the above
8. Which of these are data gathering methods used in survey research?
- A) mail questionnaires
 - B) face-to-face interviews
 - C) telephone interviews
 - D) all of the above
9. In descriptive survey research, the independent variable is:
- A) manipulated by the investigator
 - B) potentially manipulability but not manipulated
 - C) not controlled by the investigator
 - D) there are no independent variables
10. Which of these is the primary end sought of descriptive survey research?
- A) to describe what is
 - B) to describe what was
 - C) to describe what will be
 - D) all of the above
11. Which of the following is not an advantage of survey research?
- A) it is often a necessary first step in developing hypotheses
 - B) it deals with the real situation; data are collected in the actual situation
 - C) measurement error is easily avoidable
 - D) it is possible to collect a wide scope of information from a large population
12. Which of these is true of survey research?
- A) it is one of the easiest types of studies to do well
 - B) it is more intensive than extensive
 - C) it is usually conducted in a natural setting
 - D) it requires little research knowledge

____ 13. Which of these is not a threat to external validity in descriptive survey research?

- A) measurement error C) non-response error
B) selection error D) frame error E) sampling error

[2 marks each; no.13 has 1 mark= 25 marks]

QUESTION 4

Which statistical method is best suited for the following research objective and why? Choose from the following and justify:

- i. Central tendency
 - ii. Distribution – standard deviation, variance, range
 - iii. Simple correlation
 - iv. Partial correlation
 - v. Multiple correlation
 - vi. Factor analysis
 - vii. Z-ratio or t-ratio
 - viii. T-test
 - ix. Analysis of variance
 - x. Chi-square
 - xi. Multivariate analysis
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- a. Establish the influence of learning agricultural concepts in pre-school to subsequent choice of agriculture as a subject in primary, junior and senior secondary school.
 - b. Describe the activities liked by first-year university agriculture students during midterm break.
 - c. Calculate the degree of relationship between number of times reading notes in a course and grade obtained at the end of semester.
 - d. Trace the level of dependent variable mental maturity rated in a seven-point Semantic Differential scale from socio-economic status of family as main independent variable and age as rival variable.
 - e. Estimate the effect of one independent variable to another independent variable in the dependent variable.

[5 marks each]
[Total marks: 25]