



NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE
SEPTEMBER 2020_1 EXAMINATION

Course Code: EHS 407

Course Title: RESEARCH METHODOLOGY

Course Units: 3 Credit Units

Time Allowed: 3 Hours

Total Score: 70 marks

Instruction: Answer ALL questions

Question No. 1

- a) Attempt a classification of scientific research based on the mode of data collection (6 marks)
- b) Write short note on the following forms of data collection
- I. The observation (4 marks)
 - II. Interviews (4 marks)
 - III. Questionnaire (4 marks)
 - IV. Schedule (4 marks)

Question No. 2

- a) What do you understand by the term 'Descriptive Statistics?' (2 marks)
- b) Write short notes on the following:
- (1) Measures of central tendency or statistical averages (3 marks)
 - (2) Measures of dispersion (3 marks)
 - (3) Measures of asymmetry (skewness) (3 marks)
- c) What are the basic assumptions of ANOVA? State two (2) reasons why it is particularly useful to scientists (5 marks)
- d) List the common experimental designs used in scientific research (4 marks)

Question No. 3

State briefly key fact you expect to see in the following sections of a research proposal

- I. Introduction
- II. Research question
- III. Objective
- IV. Justification
- V. Scope
- VI. Materials and methods
- VII. Budget:
- VIII. Work plan
- IX. Expected Results and Impact
- X. Conclusion

Question No. 4

a) In a study of the residual levels of four types of pesticides on crop land in ppm/hectare, the following data was obtained

A	B	C	D
112	130	103	213
86	112	78	222
100	121	64	241
92	131	65	204
101	134	79	230
97	118	82	226

Use the data to answer the following questions:

i) What experimental design will you use to analyse the results

ii) Determine the value of the following parameters

- I. Number of treatments (r)
- II. Number of replicates
- III. Total number of samples (n)
- IV. Degree of freedom for Total (DT)
- V. Degree of freedom for treatment (Dt)
- VI. Degree of freedom for error (De)
- VII. Correction factor (CF)
- VIII. Sums of squares for total (population/sample) (SST)
- IX. Sums of squares for treatment (SS_t)
- X. Sums of squares for error (SS_e)

b) What is 'Mean Separation'?