



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**FACULTY OF SOCIAL SCIENCES**  
**DEPARTMENT OF ECONOMICS**  
**2024 1 EXAMINATION**

**COURSE TITLE: RESEARCH METHODOLOGY**

**COURSE CODE: ECO 311**

**CREDIT UNITS: 3 UNITS**

**TIME ALLOWED: 3 HOURS**

**INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS. ALL QUESTIONS HAVE EQUAL MARKS**

**QUESTION 1**

- 1a). Explain the term hypothesis (7.5 Marks)  
1b). identify the differences between a null hypothesis and an alternative hypothesis (10 Marks)

**QUESTION 2**

- 2). Outline and discuss five (5) fundamental qualities embedded in a good research report. (17.5 Marks)

**QUESTION 3**

- 3a). How is the Chi-square different from the student t-test (5 Marks)  
The t-test is a parametric test statistic used when the mean performance of two groups is to be determined using a stated level of criterion. It is used when the sample in question is small (i.e.  $n < 30$ ) (2.5 Marks). While the Chi-square is a non-parametric test statistic employed to test the variation between two observations i.e. the actual and the observed. (2.5 Marks)

- 3b). A battery producer declared that the life span has a variance of 9 hours. Suppose a random sample of 12 batteries was selected with a sample variance of 8.5 hours. Test the hypotheses at a 5% significance level that  $\sigma^2 = 9$  hours against  $\sigma^2 \neq 9$  hours. Interpret your result. (12.5 Marks)

**QUESTION 4**

- 4). Briefly describe these three concepts: (17.5 Marks)  
(i) Errors in hypothesis testing  
(ii) Level of significance  
(iii) Level of confidence

**QUESTION 5**

- 5). Identify and discuss the various limitations of applying scientific methods in social science research. (17.5 Marks)