NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCES

DEPARTMENT OF PURE AND APPLIED SCIENCE

APRIL/MAY, 2019 EXAMINATIONS

COURSE CODE: **PHY 461**
COURSE TITLE: **GEOPHYSICS III**
CREDIT UNIT **3**
TIME ALLOWED **(2½ HRS)**

INSTRUCTION: ***Answer question 1 and any other four questions***

QUESTION 1

a. Briefly describe the basic theory of Electrical resistivity (6 Marks)

b. State five (5) areas of application of this method (5 Marks)

c. List any five (5) electrode array in electrical resistivity method (5 Marks)

d. Discuss briefly the concept of Vertical Electrical Sounding (VES)
and 2D Electrical Resistivity Imaging (ERI) (6 Marks)

QUESTION 2

a. Briefly describe any four Electrical Resistivity Field instrument (8 Marks)

b. List four (4) sources of Noise in resistivity data (4 Marks)

QUESTION 3

a. With the aid of diagram, describe the general basic principle of
Electromagnetic surveying . (6 Marks)

b. State six areas of application of this method (6 Marks)

QUESTION 4

a. Discuss the operational mechanism of the Slingram method with the aid of diagram (6 Marks)

b. What factors control the depth of penetration of EM fields? (3 Marks)

c. Enumerate the advantages of Electromagnetic method (3 Marks)

QUESTION 5

a. Explain the working principle of constant-separation traversing method. (6 Marks)

b. Discuss briefly the interpretational concept of Vertical Electrical Sounding (VES). (6Marks)

QUESTION 6

a. Discuss briefly the basic principle and measuring technique in Transient

Electromagnetic. (7 Marks)

b. Explain the term Very Low Frequency Radiation. (5 Marks)