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

DEPARTMENT OF PURE AND APPLIED SCIENCE

2021_1 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
(i)Describe five (5) types of geophysical method in tabular form (5 marks)

in terms of their:

(ii)main sources of the field (5 marks) (iii) depth of application (2 marks)

(iv)main application areas (5 marks) and (v) survey method. (5 marks)

QUESTION 2
(a) Briefly describe Basic Physics of Electromagnetic method (3 marks)

(b) List and discuss any three (3) factors that determine whether or not a particular conductor will be detectable with any Electromagnetic System (EM) system (9 marks)

QUESTION 3
(a)Discuss briefly the basic principle and measuring technique in Transient Electromagnetic Method (8 marks)
(b) Explain the term Very Low Frequency Radiation (4 marks)

QUESTION 4
(a)Draw a Variation in skin depth, d, with respect to frequency and resistivity. (4 marks)
(b)What is a phase angle? (4 marks)
(c)Show a Phase in sinusoidal waves (4 marks)

QUESTION 5
(a)Briefly describe the CSAMT data. (6 marks)
(b)List three (3) VLF instruments. (3 marks)
(c)Briefly discuss Coupling in VLF. (3 marks)

QUESTION 6

(a) Discuss the basic principle of Natural and Controlled-Source Audio-magnetotelluric (8 marks)

(b) Outline the factors which control the depth of penetration of EM Fields. (4 marks)