

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

#### DEPARTMENT OF PURE AND APPLIED SCIENCE

2021\_2 EXAMINATIONS 5678

**COURSE CODE: PHY461** 

**COURSE TITLE: GEOPHYSICS III** 

**CREDIT UNIT:** 

TIME ALLOWED:  $(2\frac{1}{2} HRS)$ 

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

## **QUESTION 1**

(a) Briefly describe any four Electrical Resistivity Field instrument (6 marks)

(b) List four (4) sources of Noise in resistivity data (6 marks)

(c) Discuss the operational mechanism of the Slingram method with the aid of diagram

**(10 marks)** 

## **QUESTION 2**

(a) Explain the term Earth Magnetic field

(3 marks)

(b) List and discus any three types of magnetism

(9 marks)

## **QUESTION 3**

- (a) Explain the working principle of constant-separation traversing method. (6 marks)
- (b) Discuss briefly the interpretational concept of Vertical Electrical Sounding (VES). (6 marks)

## **OUESTION 4**

(a) Briefly discuss Depth penetration in Varying Current Methods (4 marks)

(b)Briefly describes RECEIVERS the instrument that measure voltage in DC and IP surveys

(8 marks)

## **QUESTION 5**

(a) What is electrical well logging

(1 mark)

(b) List the three factors that determine soil complexity in a given area

(3 marks)

(c) List and discuss any four configurations of electrode sets in electrical well logging. (8 marks)

## **QUESTION 6**

- (a) Outline and explain any three possible transmitting receiving coil configurations. (6 marks)
- (b) With the aid of a diagram, write short note on VLF transmissions

(6 marks)