



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 EXAMINATIONS⁵⁶⁷⁸

COURSE CODE: PHY461
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 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 discuss 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)**

QUESTION 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)**