



ELIZADE UNIVERSITY, ILARA-MOKIN

ONDO STATE

FACULTY: BASIC AND APPLIED SCIENCES

DEPARTMENT: PHYSICAL AND CHEMICAL SCIENCES

FIRST SEMESTER EXAMINATIONS

2015/2016 ACADEMIC SESSION

COURSE CODE: AGP 307

COURSE TITLE: SELF POTENTIAL, INDUCED POLARIZATION & ELECTRICAL RESISTIVITY
METHODS

DURATION: 2 ½ HOURS

HOD's SIGNATURE

m. Seled

TOTAL MARKS: 60

INSTRUCTIONS: ANSWER TWO QUESTIONS EACH FROM SECTION A AND B

SECTION A

- 1 (a) Describe how to prevent electrode polarization in SP survey
 (b) With the aid of a labeled diagram describe the various ways of presenting SP data.
 (c) Discuss the theories of the origin of SP in rock.
- 2 (a) Explain the factors that can influence membrane polarization
 (b) Name the different types of IP and the rock types in which they are pronounced
 (c) State the different ways of presenting and interpreting IP field results.
- 3 (a) Explain how to measure IP in time domain
 (b) What is a non-polarizing electrode?
 (c) With well labeled diagrams describe the energy mechanisms of the different IP types.

Section B: Answer Question 4 and any other question

4. The VES data shown in Table 1 were acquired within the premises of Elizade University, Ilara-Mokin using Schlumberger array.
 - a. Plot the data
 - b. Derive the geoelectric parameters through manual curve interpretation using appropriate curves among those provided.
 - c. Comment on the groundwater prospect of the study location. Give reason(s) for your comments.

Electrode Position	Electrode Separation (AB/2)m	Apparent Resistivity (Ohm-m)
1	1	243
2	2	227
3	3	207
4	4	183
5	6	210
6	6	214
7	8	229
8	12	253
9	15	297
10	15	283
11	25	225
12	32	209
13	40	226
14	40	231
15	65	265

5. (a) Explain five factors influencing the electrical resistivity of earth materials.
 (b) Discuss the applications of electrical resistivity method in engineering site investigation.
6. (a) Discuss with the aid of diagram, the principle of electrical resistivity prospecting method.
 (b) With well labeled diagrams, discuss the various field technique adopted in electrical prospecting survey. Explain the mode of data presentation in each of the technique.