



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

DEPARTMENT OF PHYSICS

2024 1 EXAMINATION

COURSE CODE: PHY 361  
COURSE TITLE: GEOPHYSICS II  
CREDIT UNIT: 2  
TIME ALLOWED: (2 HRS)

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

**QUESTION 1**

- ai. State four features that can be mapped using seismic reflection
- ii. What is the option(s) available for a geophysicist in areas where seismic reflection does not yield reliable information?
- bi. State other type of elastic wave apart from body wave  
Love and Rayleigh
- ii. Explain body wave
- ci. state two indicators of short break
- ii. Using the equation of Snell's law, describe the nature of the refracted ray when the velocity in the second medium is greater than the first,  $\sin r$  is equal to 1, and at a greater angle of incidence using a suitable diagram when necessary

**QUESTION 2**

- a. Explain the determinant of damping, and relative motion between coil and casing in a geophone
- b. Describe S-wave geophones

**QUESTION 3**

- a. Describe single-channel seismograph
- bi. On arrays, write short notes on relative effect, and apparent wavelength

- ii. Explain the reason for connecting geophones in arrays to each recording channel when the depth of investigation is small.

#### **QUESTION 4**

- ai. What is the angle at which the ray that is critically refracted at the lowermost interface leaves the ground surface in the case of more one interface?
- ii. Give a brief explanation on spread, and array.
- b. Discuss centre shots in refraction survey

#### **QUESTION 5**

- a. Describe the following;
- Common midpoint traces,  
Multiple reflection, and  
Fold coverage
- b. Write a short note on the principal refractors

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