



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 457
COURSE TITLE: ENVIRONMENTAL PHYSICS
CREDIT UNIT: 3
TIME ALLOWED: 3 HRS
INSTRUCTION: Answer question 1 and any other three questions

QUESTION 1

- A. State the Keplers' second Law
- B Hence, derive the expression for Keplers Second law
- C The Lyman series of lines in the emission spectrum of hydrogen corresponds to transitions from various excited states to the $n = 1$ orbit. Calculate the wavelength of the lowest-energy line in the Lyman series to three significant figures. In what region of the electromagnetic spectrum does it occur?
- D Discus space exploration
- E what is meant by *geostrophic balance*?
- F Explain the term atmosphere and describe the composition of atmosphere
- G Enumerate six elements of the weather and climate

QUESTION 2

- A. Explain the following term (i) Air pollution control (ii) Air pollution management
- B. List and explain any two sources of man-made air pollution
- C. Which weather phenomena would be nearly impossible to observe without the aid of satellite imagery?

QUESTION 3

- A What is pollution pathway?
- B List eight ways of reducing air pollution
- C List four examples of gaseous pollutant

QUESTION 4

- A Differentiate between Lapse rate and adiabatic lapse rate
- B Enumerate the three types of Lapse rate
- C List and discuss any two categories of atmospheric stability

QUESTION 5

- A Why does air cool when it rises through the atmosphere?
- B Why does the adiabatic rate of cooling change when condensation begins?

- C. If the temperature remains unchanged and the specific humidity decreases, how will relative humidity change?
- D Explain the term surface radiation

QUESTION 6

- A List and explain four component of nuclear reactor
- B Mention any three application of Nuclear energy

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