Click to download more NOUN PQ from NounGeeks.com
A-PDF Watermark DEMO: Purchase from www.A-PDF.com to remove the watermark

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

DEPARTMENT OF PURE AND APPLIED SCIENCE

2021_1 EXAMINATIONS

COURSE CODE: **PHY 455**
COURSE TITLE: **LOWER ATMOSPHERIC PHYSICS**
CREDIT UNIT: **3**
TIME ALLOWED: **(2½ HRS)**

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

QUESTION 1

a. List four (4) layers of the earth's atmosphere in terms of temperature variation with height [4 marks]

b. List two (2) layers of the earth's atmosphere in terms of its composition with height. [2 marks]

c. List any three (3) characteristics features of the troposphere. [3 marks]

d. (i) What is ionosphere? [1 mark]

(ii) Briefly describe three layers of the ionosphere [12 marks]

QUESTION 2

a. Write short note on the formation of the three *distinct* ionization peaks in the upper atmosphere [6 marks]

b. Sketch a profile showing how the electron density changes with height at temperate latitudes near sunspot maximum [6 marks]

QUESTION 3

a. Briefly describe how an Aurora is formed [6 marks]

b. What is a solar wind? List any three features of a solar wind? [6 marks]

QUESTION 4

a. State these laws: (i) Charles' law (ii) Boyles' law [5 marks]

b. Show that for a reversible adiabatic process, $pV^g = \text{constant}$ (where the symbols have their usual meaning). [7 marks]

QUESTION 5

a. Distinguish between adiabatic and an isothermal processes. [4 marks]

b. Obtain the equation for an adiabatic temperature change of a unit mass of an ideal gas. [8 marks]

QUESTION 6

a. Differentiate between latent heat of fusion and the latent heat of sublimation [4 marks]

b. Define mixing ratio and show that $w = \frac{\rho_v}{\rho_d}$ (All symbols have their usual meaning) [4 marks]

(c) Differentiate between saturated vapour and saturated air. [4 marks]