COURSE TITLE: ATMOSPHERIC PROCESSES, WEATHER AND CLIMATE.

COURSE CODE: GRY 215.

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS. Credit will be given for the use of illustrations with specific examples and relevant diagrams.

TIME ALLOWED: 2HRS.

1. (a) Define the following terms:
   (i)   Air Pressure   (ii) Air Density   (ii) isobars (iv) Wind (v) Air Temperature.
   (5mks)
   (b) At an altitude of 5600m above sea level, the air temperature is -25^0C (-13^0F).If the spacing between the isobars of the surface chart is 200km and the pressure difference is 4mb and the air density is $0.70kg/m^3$. Compute the geostrophic wind given that $2\Omega = 14.6 \times 10^{-5}$ radian/secs and that the wind is blowing parallel to the isobars in the Northern Hemisphere at latitude 40^0. (10 mks)

2. (a) State the hydrostatic equation and explain each of the term (5mks)
   (b) Suppose at the surface, a 1000m thick layers of air (under standard conditions) has an average density of 1.1 kg/m3 and an acceleration of gravity of 9.8m/s2. Determine the rate of decrease of pressure near the surface. (10mks)

3. Discuss in detail the contributions of the following forces to the generation of wind.

   (i) Frictional Forces (ii) Coriolis Force (iii) Pressure gradient Force (15mks)

4 (a) What are clouds? (2mks)

   (b) List the Ten (10) cloud genera (5mks)

   (c) Discuss the stages of a thunderstorms cell (8mks)

5. (a) What are weather phenomena? ($2^{1/2}$mks)

   (b) List Five (5) Notable weather Phenomena ($2^{1/2}$mks)

   (c) Discuss in detail one of the phenomena mentioned in (b)(10mks)

6. What are the roles of Nigeria Meteorological Agency (NIMET) in Nigeria Weather watch? (15mks)

GOOD LUCK