

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF GEOGRAPHY

FIRST SEMESTER 2013/2014 SESSION UNDERGRADUATE EXAMINATION

COURSE CODE: GRY 215 (2 Units)

COURSE TITLE: Atmospheric Processes, Weather and Climate

INSTRUCTIONS: Answer any four (4) questions of your choice. All questions carry equal marks. Credit will be given for use of specific examples and appropriate diagrams.

TIME ALLOWED: 2hours 30 minutes

1. Write explanatory notes on any Three(3) of the following:
 - (i) Thunderstorms
 - (ii) Tornadoes
 - (iii) Avalanche
 - (iv) Blizzards
 - (v) Dust storms
 - (vi) Hurricanes
 - (vii) West African Squall
2. (a) What are clouds?
(b) In a tabular form, list the Ten(10) cloud genera and the precipitation types associated with them.
3. Describe briefly three (3) of the major forces responsible for atmospheric processes.
4. (a) Derive a mathematical expression for:
 - (i) the geostrophic wind and the hydrostatic balance
 - (b) Suppose at the surface a 50m thick layer of air (under standard conditions) has an average density of 0.5kg/m^3 and an acceleration of 9.8m/s^2 . Compute the change in pressure at this layer
5. (a) Distinguish the following; weather, climate and climate change
(b) List five weather variables, the instruments used in measuring them and the standard unit of measurement.
6. Using well labeled diagrams(where necessary), explain each of the following:
 - (i) Cyclonic flow
 - (ii) anticyclonic flow
 - (iii) a col
 - (iv) a trough
 - (v) a ridge