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

SECOND SEMESTER 2013/2014 SESSION UNDERGRADUATE EXAMINATION

COURSE CODE: MET 322
COURSE TITLE: INT. ATMOSPHERIC THERMODYNAMICS & PRECIPITATION PROCESSES

INSTRUCTIONS: Answer any 4 questions. Credit will be given for the use of specific examples and relevant illustrations.

TIME ALLOWED: 2½ Hours

1) Distinguish between the following terms and processes :
   a) Kinetic energy and Momentum
   b) Conduction and Convection
   c) Stability and Instability of air parcel
   d) Cloud droplet and Condensation nuclei
   e) Riming and aggregation

2) a) State and explain the First and Second Laws of Thermodynamics
   b) Using clear illustrations, describe the following equations:
   i) $dE = dW$
   ii) $dE = dQ$
   iii) $dE = dQ + dW$
   c) What are the implications of the above equations on stability and instability of air percel

3) a) Prepare an Essay on Bergeron's Precipitation Processes
   b) Why Cloud Droplet does not fall?
   c) Distinguish between Collision and Coalescence Precipitation processes

4) Briefly provide Explanatory notes on any four of the following:

   i) Concept of Internal Energy

   ii) Frontal lifting

   iii) Low Clouds

   iv) Thunderstorm cell

   v) Convergence lifting

5) Describe the processes and formation of Lightning and thunderstorm in the Atmosphere

6) Discuss the relevance of motion in the General Circulation of the atmosphere