

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SCHOOL OF SCIENCE AND SCIENCE EDUCATION

DEPARTMENT OF GEOGRAPHY

FIRST SEMESTER 2010/2011 SESSION UNDERGRADUATE EXAMINATION

COURSE CODE: MET 511

COURSE TITLE: Advanced topics in physical meteorology

INSTRUCTIONS: Answer questions one (1) and any other two (2) questions of your choice. Credit will be given for the use of specific examples and appropriate diagrams.

TIME ALLOWED: 2 ½ hours.

1. Distinguish with clear illustrations between the following terms:
 - a. long wave and short wave radiation
 - b. conduction and convection
 - c. kinetic energy and momentum
 - d. stability and instability of air parcel
2. Write an essay with relevant illustrations on adiabatic lapse rate in the atmosphere.
3. Discuss the role of ozone, carbon dioxide, water vapour and particulate matter in the earth's radiation balance.
4. What is meant by 'albedo'? Describe the factors that determine the albedo of a given surface.
5. What are the major differences between weather systems in the tropics and in extra tropical areas?