FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SCHOOL OF PHYSICAL SCIENCES

DEPARTMENT OF GEOGRAPHY

SECOND SEMESTER 2015/2016 SESSION UNDERGRADUATE EXAMINATION

COURSE CODE: MET524

COURSE TITLE: Advanced Topics on Tropical Meteorology (3units)

INSTRUCTION: Answer **any four** Questions (Credits will be given for proper usage of relevant illustrations and diagrams)

TIME ALLOWED: 2hrs

1."The convective radiative model can explicitly forecast the release of buoyancy in the atmosphere".

(i) Develop a model equation to support this assertion
(ii) Outline and explain the challenges of convective radiative models in the tropics.

2. "The position of ITCZ, Ocean surface temperature and land/sea temperature interacts with trade wind regime to determine the characteristics of the monsoon circulation". Discuss.

3. Outline and discuss the major common features used in distinguishing tropical regions from the rest of the world.

4. (a) Enumerate and explain the general principles of moist convention.

(b)Using Wien's law explains the relationship that connects radiation of the sun and the earth together.

(c) State the importance of atmospheric stability in relation to moist convention.

5. Discuss the principles of equatorial wave theory using these notable models.

(a) Equatorial Rossby gravity waves

(b) Equatorial Kelvin waves

6. Write short note on any three of the following;

(i). Ocean response to tropical cyclone

(ii). Effect of environmental wind shear on tropical cyclone

(iii). Structure of a tropical cyclone

(iv). Formation of tropical cyclone