



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2015/2016

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR SCIENCE IN EARTH SCIENCE WITH
INFORMATION TECHNOLOGY

MAIN CAMPUS

NGA 105: ATMOSPHERIC SCIENCE

Date: 19th April, 2016

Time: 8.30 - 10.30 am

INSTRUCTIONS:

- Answer question ONE and any other TWO questions.
- Sketch maps and diagrams should be used whenever appropriate.



NGA105: ATMOSPHERIC SCIENCES

1. (a) Distinguish the following:
 - i. A geostrophic wind and a gradient wind. (5 marks)
 - ii. Dry adiabatic lapse rate and moist adiabatic lapse rate. (5 marks)
 - iii. Surface and upper air winds. (5 marks)
 - iv. Dry lines and fronts. (5 marks)
- (b) Discuss factors influencing seasons. (5 marks)
- (c) Describe the composition of the atmosphere. (5 marks)
2. (a) Describe the vertical profile of the atmosphere's pressure and temperature. (14 marks)
- (b) Discuss the life cycle of mid-latitude cyclones. (6 marks)
3. Discuss the idealized global wind and pressure patterns and the general atmospheric circulation in the mid-latitudes. (20 marks)
4. Discuss different types of air masses, how they form, and their characteristics. (20 marks)
5. (a) Discuss hurricane structure and characteristics. (10 marks)
- (b) Examine different types of lightening. (10 marks)
6. Explain ENSO Phases and the local teleconnections within Eastern Africa. (20 marks)