



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2013/2014

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN CLIMATE CHANGE &
DEVELOPMENT WITH INFORMATION TECHNOLOGY
(MAIN CAMPUS)

**NCA 201: ATMOSPHERIC CIRCULATIONS AND
CLIMATE CLASSIFICATION**

Date: 21st November, 2013

Time: 2.30 - 4.30 p.m.

INSTRUCTIONS:

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

NCA 201: ATMOSPHERIC CIRCULATION AND CLIMATE CLASSIFICATION

- 1 a) Outline the features of general circulations in the atmosphere (6 Marks)
b) Explain the TWO main types of atmospheric movements (6 Marks)
- c) Distinguish between cyclones and anticyclone in the northern and southern hemispheres (6marks)
- d) Explain the FOUR laws of radiation that influence differential heating of the Earth surface (12 Marks)
- 2a) Examine the THREE processes through which energy is transferred in the atmosphere (10 Marks)
- b) With the help of suitable illustrations, explain the adiabatic processes in the atmosphere (10 Marks)
3. Examine the forces that influence the direction and speed of wind in the atmosphere (20 marks)
4. Explain the following atmospheric circulations
- i) Hadly cell (7 Marks)
 - ii) Ferrel cell (7 Marks)
 - iii) Polar cell (6 Marks)
5. Write explanatory notes on the following:
- i) Land and Sea breezes (8 Marks)
 - ii) Types of Air masses (12 Marks)
6. a) Outline Koppen's climate classification zones. (10 Marks)
b) Explain the characteristics of equatorial climate (10 Marks)