MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CLIMATE CHANGE AND DEVELOPMENT WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

NCA 201: ATMOSPHERIC CIRCULATION AND CLIMATE CLASSIFICATION

Date: 11th January, 2016 Time: 2.30 - 4.30pm

INSTRUCTIONS:

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

QUESTION 1

a. Examine the importance of global atmospheric circulations (10 marks)

b. Account for the tropical seasonality (10 marks)

c. Explain the three principal weather factors responsible for the incidence and intensity of air pollution over a city complex (10 marks)

QUESTION 2

a. Briefly discuss the two major types of clouds. Cite examples in each case (8 marks)

b. Describe the main processes involved in cloud formation (12 marks)

QUESTION 3

Describe the THREE major global circulation systems and any FOUR local wind systems. (20 marks)

QUESTION 4

a. Describe the buoyancy mechanism in the context of atmospheric instability (10 marks)

b. Describe the process involved in thermal formation (10 marks)

QUESTION 5

Discuss the various mechanisms involved in horizontal and vertical transfer of energy across the planet's atmosphere (20 marks)

QUESTION 6

a) Explain the empirical and genetic climate classification methods (4 marks)

b) Discuss any four factors used in classifying climates (8 marks)

c) Briefly discuss any FOUR main Köppen Climate Categories (8 marks)