



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2015/2016**

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

**MAIN CAMPUS**

**NGA 203: PHYSICAL OCEANOGRAPHY**

Date: 15<sup>th</sup> January, 2016

Time: 8.30 - 10.30 am

**INSTRUCTIONS:**

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

### NGA 203: PHYSICAL OCEANOGRAPHY

1.
  - a. Describe two types of deep water waves and two types of shallow water waves. (8 marks)
  - b. Examine the main classification of estuaries. (10 marks)
  - c. Discuss the factors that determine seawater salinity. (6 marks)
  - d. Explain the roles of latent heat and sensible heat in energy transfer by ocean currents. (6 marks)
2. Examine the primary structure of ocean waters as a function of depth. (20 marks)
3. Discuss surface and deep ocean currents and their roles in global climate regulation. (20 marks)
4. Discuss the distinct characteristics of each of the following parts of the ocean:
  - a. Pacific Ocean. (7 marks)
  - b. Atlantic Ocean. (6 marks)
  - c. Indian Ocean. (7 marks)

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5.
  - a. Describe the sources and characteristics of ocean sediments and their importance in the geological history of the earth. (15 marks)
  - b. Explain the Coriolis effect. (5 marks)
6.
  - a. Discuss tidal waves formation and forecasting. (14 marks)
  - b. Discuss the global fresh water budgets. (6 marks)