MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

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

(MAIN CAMPUS)

NGA 414: WATERSHED MANAGEMENT

Date: 24th March, 2014   *Time: 11.15am – 1.30pm*

INSTRUCTIONS:

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

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NGA 414: WATERSHED MANAGEMENT

1. a) Explain the importance of land evaluation and suitability classification in watershed management   (8 marks)

   b) Write short notes on the following:
      i) Role of Geographic Information System in watershed management
                                                                      (4 marks)
      ii) Functions of a watershed   (4 marks)
      iii) River training   (4 marks)

   c) Describe at least five (5) characteristics of watersheds   (5 marks)

   d) Determine the value of area ratio (R_a) of a watershed using the following data;

Stream order (u)	1	2	3	4	5
Average area of run off contribution, (ha)	60	110	290	490	880

                                                                      (5 marks)

2. a) Discuss the areal aspects that are useful in the analysis of watersheds
                                                                      (10 marks)

   b) Examine the significance of stakeholder participation in watershed management and planning.   (10 marks)

3. Examine the challenges of managing transboundary watersheds.   (20 marks)

4. Discuss the socio-economic and cultural implications of poor watershed management practices   (20 marks)

5. Discuss the possible sources of conflict in a watershed   (20 marks)

6. a) Explain the importance of Integrated Water Resources Management principles in watershed management   (12 marks)

   b) Using the data below, derive the relationship between discharge and its contributing area   (8 marks)

Drainage area, (ha)	50	120	175	225	400	500
Average discharge, Q(m^3/s)	2	4.5	7	8.9	10.2	12