



MASEÑO UNIVERSITY
UNIVERSITY EXAMINATIONS 2013/2014

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

(MAIN CAMPUS)

NGA 406: GROUNDWATER RESOURCES MANAGEMENT

Date: 18th November, 2013

Time: 11.00 a.m. - 1.00 p.m.

INSTRUCTIONS:

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

NGA 406: GROUNDWATER RESOURCES MANAGEMENT

1. a). Discuss point and non-point pollution control measures for groundwater. (8 marks)
- b). Examine the management objectives of ground water resources. (8 marks)
- c). Write short notes on the following terms:
 - i). Safe yield. (4 marks)
 - ii). Sustainable yield. (4 marks)
 - iii). Aquifer overexploitation (3 marks)
 - iv). Ground water mining. (3 marks)

2. a). Examine two major transboundary groundwater aquifers in Eastern Africa. (12 marks)
- b). Explain the state of management of (2a) above. (8 marks)

3. Examine the relationship and management aspect of surface water and groundwater occurrence and flow. (20 marks)
4. Assess how ground water quality affects its use for different purposes (20 marks)
5. Discuss the key challenges of groundwater resources management. (20 marks)
6. Discuss how integrated groundwater management is practiced in Kenya. (20 marks)