



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2015/2016

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

MAIN CAMPUS

NGA 308: GROUNDWATER EXPLORATION

Date: 22nd April, 2016

Time: 11.00 - 1.00 pm

INSTRUCTIONS:

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



NGA 308: GROUNDWATER EXPLORATION

1. a) Explain the objectives of groundwater exploration (5 marks)
- b) Write short notes on the significance of the following
 - i) Rotary drilling method (5 marks)
 - ii) Passive geophysical survey techniques (5 marks)
 - iii) Significance of borehole testing pumping (5 marks)
- c) Explain five uses of a geologic log (5 marks)
- d) Describe any five methods used in groundwater recharge (5 marks)
2. a) Explain the content of preliminary field reconnaissance in groundwater exploration and exploitation. (10 marks)
- b) Describe the suitable geological structures and formations likely to form good aquifers (10 marks)
3. a) Examine the role of remote sensing as a tool in the surface investigation of groundwater (10 marks)
- b) Describe borehole development techniques commonly used in developing an aquifer (10 marks)
4. Discuss any four geophysical logging techniques (20 marks)
5. a) Discuss the seismic method of groundwater exploration (15 marks)
- b) Explain the problems associated with the interpretation of data in the above (5a) method (5 marks)
6. Discuss problems associated with development of groundwater resources in Kenya (20 marks)