



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

NES 304: WATER SUPPLY AND SANITATION

Date: 23rd February, 2018

Time: 12.00 - 3.00pm

INSTRUCTIONS:

- Answer Question ONE and any other TWO



1. (a) Write brief notes on how water demand in a given community would fluctuate. (6marks)
- (b) Explain the following:
- (i) Factors to consider in selecting intake points. (5marks)
- (ii) Different forms of chlorination. (9marks)
- (c) Explain the reasons why conservancy system of collection and disposal of refuse should not be recommended in modern towns and cities. (10marks)
2. (a) What factors would you consider in establishing sewage disposal by dilution method? (6marks)
- (b) Discuss the health risks associated with inadequate supply of safe water and poor sanitary conditions. (14marks)
3. (a) Describe the various mechanisms that would explain the theory of water filtration. (12marks)
- (b) Design a sedimentation tank for water supply scheme which 1.5×10^6 litres/day to Maseno University. Assume detention period as 5 hours, velocity flow as 20cm/min, depth of the tank as 3m and allowance for sludge deposition as 50cm. (8marks)
4. (a) Explain the requirements for an ideal water distribution system in a given urban centre. (6marks)
- (b) Critically examine plausible solutions to the challenges facing various water service providers in Kenya. (14marks)
5. (a) Describe some of the best sanitary arrangements that can be used in rural parts of coastal region of Kenya. (12marks)
- (b) Explain how self purification of raw sewage may takes place in natural waters. (8marks)