



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (PUBLIC HEALTH)

HPH215-1: LIQUID WASTE MANAGEMENT

DATE: 30/5/2022

TIME: 2.00-4.00 PM

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

Specific Instructions

- This section has one question
- The question is compulsory
- The question is 30 marks

QUESTION ONE (30 MARKS)

- a) Define the following terms (3 marks)
- Effluent
 - Sludge
 - Drain
- b) Compare and contrast combined drainage system and single drainage system. (3 marks)
- c) Explain the biological composition of liquid wastes. (4 marks)
- d) State the purposes of traps in liquid waste management. (3 marks)
- e) Explain 5 (five) environmental factors that affect sewage treatment. (5 marks)

- f) Explain the three (3) types of bacteria that assist in the stabilization of organic matter in waste water. (3 marks)
- g) Explain three (3) methods of sampling sewage that you would use during waste water sampling. (3 marks)
- h) The presence of nitrate nitrogen in waste water indicates old pollution. Explain. (3 marks)
- i) List six (6) chemical methods of waste water treatment. (3 marks)

SECTION B:

Specific Instructions

- **This Sections has four (4) questions**
- **Answer any two (2) questions**
- **Each question is 20 marks**

QUESTION TWO (20 MARKS)

- a) An estate management consultant approaches your office complaining of offensive odor and frequent blockages of their drainage fittings to a residential flat. Explain the common defects resulting to such problems. (10 marks)
- b) Describe how a trickling filter works during the process of waste water treatment.(10 marks)

QUESTION THREE (20 MARKS)

- a) Explain the challenges associated with liquid waste management in Kenya. (10 marks)
- b) Describe the tests that are undertaken during the inspection of a drainage system. (10 marks)

QUESTION FOUR (20 MARKS)

- a) The method of waste water treatment to be adopted depends on a number of factors. Discuss. (10 marks)
- b) Discuss the functioning of a waste stabilization pond. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Describe the conventional stages of a waste water treatment plant. (10 marks)
- b) Explain the importance of liquid waste management. (10 marks)