



MACHAKOS UNIVERSITY

University Examinations 2019/2020 Academic year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN PUBLIC HEALTH.

HPH 208: LIQUID WASTE MANAGEMENT I

DATE: 10/12/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

This paper consists of two sections A and B

SECTION A

- This section has one question
- The question is **COMPULSORY**
- The question is 30 Marks

SECTION A. COMPULSORY

QUESTION ONE (30 MARKS)

- Explain the term sewer and drain as used in liquid waste management (3 marks)
- State the objectives of liquid waste management (3 marks)
- Differentiate between the following as used in drainage
 - fitments and fittings (3 marks)
 - Cast iron drains and Polyvinyl chloride drains (3 marks)
- Briefly describe the different types of bacteria that assist in stabilization of organic matter in wastes (3 marks)
- Explain the term Biochemical Oxygen Demand (BOD) (3 marks)
- Identify the different types of water closets for excreta disposal (3 marks)
- State six sources of liquid wastes (3 marks)
- Highlight the characteristics of a good drainage trap (3 marks)
- Explain the uses of treated waste water (3 marks)

SECTION B

- **This section has FOUR questions**
- **Choose any TWO (2) questions.**
- **Each question is 20 marks**

QUESTION TWO (20 MARKS)

- a) Explain how you would ensure proper maintenance of a building drainage (10 marks)
- b) Describe the chemical composition of liquid wastes (10 marks)

QUESTION THREE (20 MARKS)

- a) Boit was among the students who visited Nyeri Water and Sewerage Company. He was particularly concerned about the sewage that was flowing into the treatment plant on that particular day. Using appropriate examples, explain the characteristics of waste water that he observed. (10 marks)
- b) A residential building has been constructed in your area of jurisdiction. As the public health officer in charge, you have been tasked with conducting drain tests. Explain the different methods you would use. (10 marks)

QUESTION FOUR (20 MARKS)

- a) A good drainage system is important for proper waste management. Explain the qualities of a drainage system (10 marks)
- b) As a public health officer, advice a building constructor on the different types of drainage systems highlighting the advantages of each. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Using relevant examples, explain two main types of fitments and fittings as used in drainage (10 marks)
- b) Explain the role of public health officers in the management of liquid wastes (10 marks)