



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (PUBLIC HEALTH)

HPH 305: SOLID WASTE MANAGEMENT

DATE: 24/8/2022

TIME: 8.30-10.30 AM

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) In each of the following statements relating to solid waste management, indicate true (T) or false (F) as appropriate (3 marks)
- Semi-solid sludge from waste water treatment plants are considered solid wastes
 - Sea barging is a highly recommended solid waste disposal method
 - Solid wastes cannot cause teratogenic effects
 - Garbage and rubbish are synonymous
 - Human excreta is included as solid waste since it is either solid or semi-solid
 - Solid waste management is a new concept that started in the 19th century
- b) List the advantages of tractor trailer system of solid waste collection (3 marks)
- c) Highlight the advantages of solid waste refuse analysis (3 marks)

- d) State six (6) main pieces of legislation applicable to solid waste management in Kenya (3 marks)
- e) In recovery and utilization of resources from solid wastes, the resource recovery aspect regarding the organic content is threefold. Explain (3 marks)
- f) Explain the techniques used in composting solid wastes (3 marks)
- g) Identify three (3) reasons why accurate knowledge of solid waste characteristics is critical in solid waste management (3 marks)
- h) Explain the role of community involvement in solid waste management (3 marks)
- i) Explain why you would recommend the use of an incinerator as a method of waste disposal (3 marks)
- j) Explain the methods through which waste reduction can be achieved (3 marks)

SECTION B:

Specific Instructions

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

QUESTION TWO (20 MARKS)

- a) Discuss factors that may affect generation of solid waste in the future. (10 marks)
- b) Describe the critical problems associated with effective waste management in Kenya. (10 marks)

QUESTION THREE (20 MARKS)

- a) With the aid of a well labelled diagram, explain why the waste management hierarchy is a key element of integrated solid waste management. (10 marks)
- b) Discuss the factors to be considered during onsite handling and storage of solid wastes. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the health effects of poor solid waste management in Sub-Saharan countries. (10 marks)
- b) A visit to Dandora dumpsite gives a clear view of the magnitude of the problems associated with solid waste management. As a public health officer, explain the factors to consider when identifying land to be used for dumping of solid wastes. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the main problems associated with landfills as a method of waste disposal. (10 marks)
- b) Describe the factors affecting the frequency of waste collection in Low- and Middle-Income countries. (10 marks)