



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF HEALTH SCIENCES**  
**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE PUBLIC**  
**HEALTH / COMMUNITY HEALTH AND DEVELOPMENT**  
**3<sup>RD</sup> YEAR 1<sup>ST</sup> SEMESTER 2022/2023 ACADEMIC YEAR**  
**MAIN CAMPUS**

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**COURSE CODE: HCB 1305**

**COURSE TITLE: LIQUID WASTE MANAGEMENT**

**EXAM VENUE: STREAM: (BSc. Env. Hlth.)**

**DATE: 19/12/2022 EXAM SESSION: 9.00-11.00AM**

**TIME: 2.00 HOURS**

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**Instructions:**

- 1. Answer all the questions in Section A and ANY other 2 questions in Section B.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

**SECTION A: ANSWER ALL THE QUESTIONS (30 MARKS)**

1. Explain the difference between Black/soil water and Grey water **(3 marks)**
2. Describe any FOUR characteristics of wastewater **(3 marks)**
3. Explain the difference between a soak-pit and a septic tank **(4 marks)**
4. Explain the function of an inspection chamber **(2 marks)**
5. State THREE advantages of two pipe system **(3 marks)**
6. What is an appurtenance? **(2 marks)**
7. Describe any three sanitary fittings commonly used in houses **(4 marks)**
8. Explain the difference between industrial waste water and Residential waste water **(3 marks)**
9. What is the importance of water seal inside a trap **(3 marks)**
10. List any THREE drain tests **(3 marks)**

**SECTION B: ANSWER QUESTION ONE (1) AND ANY OTHER QUESTION (40 MARKS)**

1. Describe in detail the factors to be consider in the design of wastewater drainage system **(20 Marks)**
2. Compare and Contrast Biological Waste Water treatment methods and Conventional treatment methods. **(20 marks)**
3. The Environment Management and Control Act as well as the Public Health Act require the County Governments (Local Authorities) to manage Liquid wastes. Explain their role and why the Law puts the obligation on them **(20 marks)**.
4. Explain factors to be considered in the design and operation of a Trickling Filter **(10 Marks)**
  - a). Escherichia Coli is an indicator organism. Explain the statement and its implication in waste water treatment **(10 Marks)**