JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE

PUBLIC &COMMUNITY HEALTH AND DEVELOPMENT

1ST YEAR 2ND SEMESTER 2023/2024 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: **HCB 1112**

COURSE TITLE: **LABORATORY METHODS FOR ENVIRONMENTAL HEALTH**

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

DATE: **EXAM SESSION:**

TIME: **2.00 HOURS**

Instructions:

1. **Answer all the questions in Section A each contain 3 marks and ANY other two questions in Section B each contain 20 marks.**
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 [30 MARKS]

Answer ALL questions from this Section.

Question one.

a) Define the following terms as used to define characteristics of chemicals: (6 Marks)

i. Irritating
ii. Flammable
iii. Explossive

b) What are the functions of the bellow equipment. (8 marks)

i. Microscope
ii. Autoclave
iii. Centrifuge
iv. Spectrophotometer

c)

i. State 4 criteria of a good solvent (2 marks)
ii. Give 2 examples of buffering agents in nature (2 marks)

d) Explain the following terms as used in the laboratory (6 marks)

i) Chemical hazard
ii) Biological hazard

e) As an environmental health officer in charge of the environmental health laboratory how would you explain the following guidelines to chemical storage and handling to students visiting your lab? (6 marks)

i) chemical handling
ii) incompatible chemicals
iii) excessive storage

Question 2

Discuss on the equipment and attires that students need while performing any procedure in a public health laboratory (20 marks)

Question 3

a) Discuss any FOUR possible routes of exposure of chemicals into the body. (12 marks)

b) Discuss how you can handle the following challenges in the lab.(8marks)

i. Fire outbreak

ii. Chemical Spill

Question 4

Safety of students in any lab depends on a number of variables, amongst which is handling of chemicals. Discuss how this variable can be managed in a chemistry lab. (20 marks)

Question 5

a) With the aid of an illustration explain the following type of errors how they occur and how they can be minimized.
i) Random Errors (6 marks)
ii) systematic Errors (6 marks)

c) Discuss 3 errors in a titration experiments.(8 marks)