



KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF
BACHELOR OF SCIENCE IN PUBLIC HEALTH**

SECOND SEMESTER 2022/2023

[JAN - APRIL, 2023]

PHES 121: LABORATORY METHODS AND PRACTICES

STREAM: Y1 S2

TIME: 3 HOURS

DAY: THURSDAY, 9:00 – 12:00 P.M.

DATE: 06/04/2023

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer ALL questions in SECTIONS A and B. Answer TWO questions in SECTION B***
- 3. Due attention must be paid to clear, precise and legible answers.***

SECTION A: Answer all Questions

- Differentiate between a molar solution and standard solution (4 marks)
- Outline the principle of fluorimetry (4 marks)
- Name the main uses of a colorimeter (4 marks)
- Define the following: (4 marks)
 - Electrophoresis
 - Chemical equilibrium
 - Monoprotic acid
 - Buffer solution
- What do you understand by autoclaving? Give its applications in a medical laboratory (4 marks)
- Briefly, discuss the concepts of electrochemistry (4 marks)
- Name the main components of a centrifuge (4 marks)

8. Given the concentration of a solution as 40%, show how to prepare 10% from this solution. Show your calculations (4 marks)
9. Differentiate between a weight by weight and volume by volume preparations (4 marks)
10. Why is calibrating an equipment important? (4 marks)

SECTION B: ANSWER ANY TWO

11. Discuss various laboratory ware giving their uses (for measurement and weighing). (15 marks)
12. Discuss consequences of environmental pollution and maximum pollution thresholds and their control mechanisms (15 marks)
13. What is the importance of laboratory safety and how is it achieved in a laboratory? (15 marks)