



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTUARIAL
SCIENCE

UNIVERSITY EXAMINATION FOR DIPLOMA IN SCIENCE LABORATORY

YEAR 1 SEMESTER 2
2023/2024 ACADEMIC YEAR
REGULAR

COURSE CODE: SLD 1102

COURSE TITLE: LABORATORY STANDARD PRACTICES

EXAMINATION VENUE:

EXAMINATION SESSION:

DATE OF EXAMINATION:

TIME: 2 HOURS

INSTRUCTIONS:

- 1. Answer all questions in section A and any six questions in section B**
- 2. Candidates are advised not to write on question papers**
- 3. Candidates MUST hand in their answer booklets to the invigilator while in the examination rooms**
- 4. Some important information, formulas and the periodic table may be provided on the last page of this question paper**

SECTION A: COMPULSORY

QUESTION 1 (40 MARKS) (ATTEMPT ALL QUESTIONS IN THIS SECTION)

- a) (i) What is a laboratory standard? (1 mark)
(ii) What is a laboratory reagent? (1 mark)
(iii) Name the four classes of laboratory apparatus (2 marks)
(iv) Give two reasons why laboratory equipment should be calibrated (2 mark)
(v) List any four daily activities done to maintain general cleaning of science laboratories (2marks)
(vi) Explain why it is important to care and maintain laboratory equipment (2 marks)
(vii) List any four basic rules that should be observed in the science laboratories (2 marks)
- b) (i) Differentiate between laboratory disinfectants and antiseptics (2 marks)
(ii) List any two sources of laboratory disinfectants and antiseptics (2 marks)
(iii) Name the most commonly used disinfectant in the science laboratories (1 mark)
(iv) Suggest four precautions required during a laboratory disinfection process (4 marks)
(v) Suggest any 2 precautions required during the use of laboratory antiseptics (2 marks)
(vi) Name any two commonly used PPEs in the laboratory during disinfection processes (2 marks)
- c) (i) Distinguish between waste segregation and waste disposal? (2 mark)
(ii) Identify any three challenges likely to be experienced by laboratory technicians in the segregation of wastes in the laboratory (3 marks)
(iii) List any four daily activities done to maintain general cleaning of science laboratories (2marks)
- d) (i) Explain the importance of water in the science laboratory (2 marks)
(ii) Describe the use and care for wash bottles in the science laboratories (2 marks)
(iii) Explain why a laboratory technician should have basic first aid skills (1 mark)
(iv) List any six items that should be found in the first aid kit in a science laboratory (3 marks)

SECTION B (60 MARKS)

Attempt any SIX of the NINE questions.

QUESTION 2 (10 MARKS)

Discuss any five major elements of laboratory standards (10 marks)

QUESTION 3 (10 MARKS)

- a) Describe the concept of laboratory management (4 marks)
- b) List and explain any three core principles of laboratory management (6 marks)

QUESTION 4 (10 MARKS)

- a) What is preventive maintenance of laboratory equipment? (2 marks)
- b) Describe the best operating practices in the preventive maintenance of the following laboratory equipment: (8 marks)
 - (i) Pipettes
 - (ii) Water distiller
 - (iii) Weighing machines/Scales
 - (iv) Volumetric flasks

QUESTION 5 (10 MARKS)

- a) Differentiate between waste disposal and waste management (2 marks)
- b) Explain any four principles of laboratory waste disposal (8 marks)

QUESTION 6 (10 MARKS)

- a) Describe any three basic categories of hazards in the science laboratory (6 marks)
- b) Explain any two best practices for proper storage and handling of chemicals in the science laboratory (4 marks)

QUESTION 7 (10 MARKS)

- a) Discuss any three categories of water used in the laboratory (6 marks)
- b) Suggest four strategies for conservation of water in the science laboratory (4 marks)

QUESTION 8 (10 MARKS)

- a) Describe the role of the following structures with respect to laboratory reagent preparations: (4 marks)
 - (i) Fume chamber
 - (ii) Reagent preparation room
- b) Describe any six strategies for the prevention of laboratory reagent contamination (6 marks)

QUESTION 9 (10 MARKS)

- a) Explain the significance of using personal protective equipment (PPEs) in the science laboratories (2 marks)
- b) Discuss any four guiding principles in the choice of PPEs to be used in the science laboratories (8 marks)

QUESTION 10 (10 MARKS)

- a) Explain the role of chemical reagent labels (2 marks)
- b) Describe any four (4) basic first aid skills required of science laboratory technicians (8 marks)

END