

2922/104  
ENVIRONMENTAL LABORATORY  
PRACTICE  
Oct./Nov. 2021  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
DIPLOMA IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY  
MODULE I

ENVIRONMENTAL LABORATORY PRACTICE

3 hours

INSTRUCTIONS TO CANDIDATES

*This paper consists of TWO sections; A and B.*

*Answer ALL the questions in section A and any THREE questions from Section B in the answer booklet provided.*

*Each question in section A carries 4 marks while each questions in section B carries 20 marks.*

*Maximum marks for each part of a question are as shown.*

*Candidates should answer the questions in English.*

**This paper consists of 3 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

SECTION A (40 marks)

Answer ALL the questions in this section.

1. List any **four** factors considered while selecting materials for making bench tops. (4 marks)
2. Name **four** laboratory flooring materials with low maintenance requirements. (4 marks)
3. State **four** considerations necessary while wearing personal protective equipment in the laboratory. (4 marks)
4. (a) State **two** symptoms shown by a victim exposed to citric acids in the eyes. (2 marks)  
(b) Describe the first aid procedure of the victim in (a) above. (2 marks)
5. Draw each of the following laboratory wares:
  - (a) round bottomed flask: (2 marks)
  - (b) flat bottomed round flask. (2 marks)
6. State any **four** contents of a label placed on a solution package. (4 marks)
7. Outline the procedure of preparing a 1 M sodium hydroxide solution. (4 marks)
8. State **four** disadvantages of using plastic materials in making laboratory test tubes. (4 marks)
9. Name any **four** contaminants removed during filtration of water in a treatment plant. (4 marks)
10. Distinguish between soft glass and hard glass. (4 marks)

**SECTION B (60 marks)**

*Answer any THREE questions from this section.*

11. (a) Define flooring as used in laboratory practice. (2 marks)
- (b) (i) Describe **seven** structural reasons of using ceramic tiles on laboratory floors. (14 marks)
- (ii) State **four** advantages of using ceramic tiles on laboratory floors. (4 marks)
12. (a) Describe the **three** types of burns. (6 marks)
- (b) Outline the first aid procedure administered to a victim burnt by a bunsen burner in the laboratory. (10 marks)
- (c) State **four** precautions taken while administering first aid to the victim in (b) above. (4 marks)
13. (a) With the aid of a diagram, describe the features of a volumetric flask. (15 marks)
- (b) Outline the procedure for cleaning a volumetric flask. (5 marks)
14. (a) Define the term camera. (2 marks)
- (b) State **four** qualities of a good photographer. (4 marks)
- (c) With the aid of a labelled diagram, describe the working of a digital single lens reflex (DSLR) camera. (14 marks)
15. (a) Name **five** animals used for laboratory studies. (5 marks)
- (b) State **five** qualities required of bedding of laboratory animals. (5 marks)
- (c) Explain the **three** methods of breeding of laboratory animals. (9 marks)
- (d) State a reason for breeding laboratory animals. (1 mark)

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