

2913/103  
LABORATORY AND  
WORKSHOP PRACTICE  
June/July 2023  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN FOOD SCIENCE AND PROCESSING TECHNOLOGY

MODULE I

LABORATORY AND WORKSHOP PRACTICE

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*answer booklet;*

*non-programmable scientific calculator.*

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

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

*Each question in section A carries 15 marks while each question in section B carries 20 marks.*

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

*Candidates should answer the questions in English.*

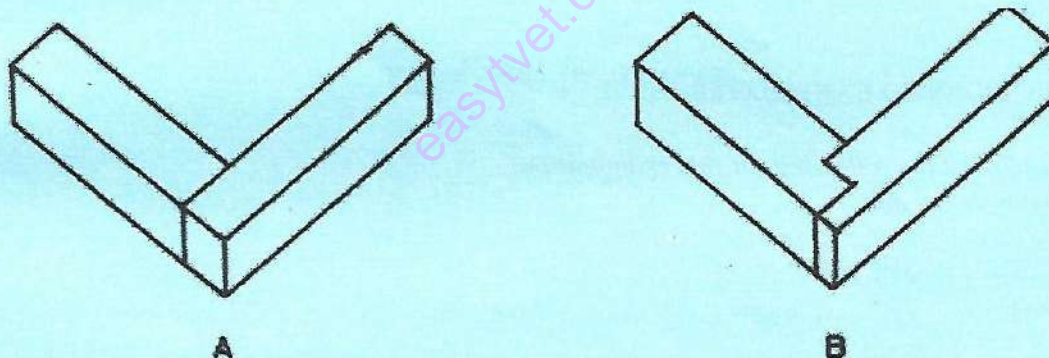
**This paper consists of 4 printed pages.**

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

**SECTION A (60 marks)**

*Answer ALL questions in this section.*

1. (a) Differentiate between rimless sink and rimmed sink. (4 marks)
- (b) State **five** requirements for sink traps to be used in a standard laboratory. (5 marks)
- (c) Explain the functions of the following laboratory fittings:
- (i) benches; (2 marks)
  - (ii) fume chamber; (2 marks)
  - (iii) emergency showers. (2 marks)
2. (a) State **four** causes of physical injuries while working in a science laboratory. (4 marks)
- (b) Figure 1, below shows two types of wood joints labelled A and B.
- (i) Identify joints A and B. (2 marks)
  - (ii) State **three** advantages of joint B over joint A. (3 marks)



**Fig.1**

- (c) Sketch the symbol for each of the following electrical components that are fitted in a science laboratory.
- (i) bulb. (2 marks)
  - (ii) switch. (2 marks)
  - (iii) socket. (2 marks)

3. (a) Explain the functions of the following wood work tools.
- (i) mallet; (2 marks)
  - (ii) jackplane; (2 marks)
  - (iii) claw hammer. (2 marks)
- (b) Explain the safety measures observed when using compressed gases in a science laboratory. (9 marks)
4. (a) Explain **four** types of wounds that a science laboratory technician is likely to suffer from while working. (8 marks)
- (b) Describe the general first aid procedure administered to a victim suffering from fractures. (7 marks)

**SECTION B (40 marks)**

*Answer any TWO questions from this section.*

5. (a) State **five** ways of reducing laboratory wastes. (5 marks)
- (b) Describe the management of the following laboratory wastes:
- (i) contaminated sharps; (3 marks)
  - (ii) Non-contaminated sharps. (3 marks)
- (c) State **nine** requirements for a preservative used in timber preservation. (9 marks)
6. (a) State **four** advantages of stainless steel bench tops. (4 marks)
- (b) A laboratory technician decided to prepare a chemical solution for continuous use in a science laboratory. State the information that need to be indicated on the chemical label before storage. (4 marks)
- (c) Explain the general safety precautions observed in th use and storage of toxic substances in the laboratory. (12 marks)

7. (a) Describe the cleaning procedure for the following types of science laboratory tools and equipment:
- (i) volumetric flasks; (4 marks)
  - (ii) glassware used for organic reagents. (4 marks)
- (b) Explain **two** methods of heat sterilization as applied in science laboratory. (4 marks)
- (c) State **eight** factors which affect the choice of a chemical disinfectant used in cleaning science laboratory. (8 marks)
8. (a) State **two** examples of each of the following tools used in metal work:
- (i) chisels; (2 marks)
  - (ii) tape measures; (2 marks)
  - (iii) pliers; (2 marks)
  - (iv) screw drivers. (2 marks)
- (b) State **four** symptoms shown by a person affected by electric shock. (4 marks)
- (c) Describe **eight** ways of preventing electrical hazards in a laboratory. (8 marks)

**THIS IS THE LAST PRINTED PAGE.**