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2922/104
ENVIRONMENTAL LABORATORY PRACTICE
Oct/Nov. 2019
Time: 3 hours



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

ENVIRONMENTAL LABORATORY 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 THREE questions from section B in the answer booklet provided.

Each question in section A carries 4 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 3 printed pages.

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

SECTION A (40 marks)

Answer ALL the questions in this section.

1. List **four** pieces of information on a label of a container storing chemical waste. (4 marks)
2. Name **four** sources of electrical faults that can cause sparks in the laboratory. (4 marks)
3. State **four** reasons why nylon fabric is not used in making laboratory coats. (4 marks)
4. Describe **two** ways of burying spilled toxic laboratory waste. (4 marks)
5. Name **four** sources of vibrations in the balance room of a laboratory. (4 marks)
6. (a) Define 'first aid'. (2 marks)
(b) State any **two** objectives of administering first aid to accident victim in the laboratory. (2 marks)
7. State **four** symptoms of shock due to being subjected to a sudden severe fear in the laboratory. (4 marks)
8. Distinguish between distilled water and deionized water. (4 marks)
9. List **four** types of wares used as apparatus in a chemistry laboratory. (4 marks)
10. Distinguish between natural lighting and artificial lighting in a laboratory. (4 marks)

SECTION B (60 marks)

Answer any THREE questions from this section.

11. (a) Draw the **three** types of flames produced by a bunsen burner. (6 marks)
(b) You are provided with two beakers, a pouring rod, filter paper, filter funnel, and a funnel stand. With the aid of a diagram, outline the procedure for filtering a water sample in the laboratory using the apparatus. (14 marks)
12. (a) Explain **two** reasons for prohibiting smoking in the laboratory. (4 marks)
(b) List **four** factors to be considered when choosing flooring material for a chemical laboratory. (4 marks)

- (c) Explain three disadvantages of using each of the following materials in constructing laboratory floors:
 - (i) concrete; (6 marks)
 - (ii) polyvinyl chloride (PVC). (6 marks)

- 13. (a) State four reasons for dressing a wound of an accident victim. (4 marks)
- (b) Outline the first aid procedure administered to a victim who has sustained a broken glass cut on the arm. (8 marks)
- (c) Explain the first aid treatment administered to a nose bleeding victim in the laboratory. (8 marks)

- 14. (a) (i) Define the term 'darkroom'. (2 marks)
- (ii) Describe the importance of darkroom in photography. (2 marks)
- (b) Describe four non-chemical materials used in a photographic darkroom. (8 marks)
- (c) Outline the four steps of developing a white and black photograph. (8 marks)

- 15. (a) State the use of mercury barometer. (2 marks)
- (b) With the aid of a labelled diagram, explain the working principle of a mercury barometer. (10 marks)
- (c) Outline the process of installing a mercury barometer in the laboratory. (8 marks)

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