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ENVIRONMENTAL LABORATORY
PRACTICE
June/July 2016
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;

A 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 the pages are printed as indicated and that no questions are missing.

SECTION A (40 marks)

Answer ALL the questions in this section.

1. State **four** advantages of a Tarrazzo floor finish in a laboratory. (4 marks)
2. Describe **four** ways of storing potassium metal in a laboratory. (4 marks)
3. Outline the procedure of intravenous injection of a rabbit in the laboratory. (4 marks)
4. State **four** qualities of a bench used for mounting analytical balance. ^{- strong} (4 marks)
5. A student is provided with 500 ml of 600 ppm solution of lactose. Calculate the volume of this solution in millilitres that contains 0.15 g of lactose. ^{- 100ml} (4 marks)
6. State any **four** factors considered when selecting materials for making a laboratory bench.
- Cost - Resistance
- Durability - Availability (4 marks)
7. List any **four** uses of cryogenic fluids in a laboratory. (4 marks)
8. State **four** safety precautions to be taken while preparing a developer used in photography.
- No light - dark
- wide (4 marks)
9. Outline the procedure of washing a pipette in the laboratory. (4 marks)
10. State **four** importance of using Pvc tiles over concrete floors in the laboratories. (4 marks)

SECTION B (60 marks)

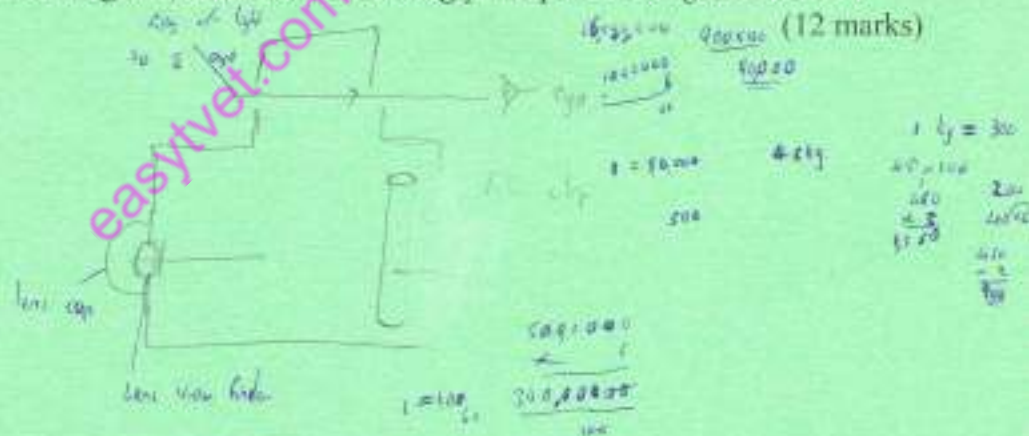
Answer any THREE questions from this section.

11. Using well labelled diagrams, outline the process of preparation of the following in the laboratory:
 - (a) distilled water; (10 marks)
 - (b) de-ionized water. (10 marks)
12. (a) Explain **four** classes of biological fixatives. (8 marks)
(b) Explain any **six** factors that influence the effectiveness of a biological fixative. (12 marks)



shaking, Cervical dilatation, B. labor, Shaving,

13. (a) Explain five principles used in Euthanasia of laboratory animals. (10 marks)
- (b) State any six characteristics of ideal beddings of a rabbit. (6 marks)
- (c) State four activities performed by a rabbit breeder during the weaning stage. (4 marks)
14. (a) Define the term Asphyxiation. (2 marks)
- (b) A laboratory staff experienced an electric shock while working on an electric device. State any six possible causes. (6 marks)
- (c) Explain three reasons why a large number of plugs and adaptors must not be used in a single socket. (6 marks)
- (d) Explain three hazards that can be caused by a gas leakage in the laboratory. (6 marks)
15. (a) Describe the procedure of processing a film into a negative in a darkroom. (8 marks)
- (b) Using a well labelled diagram, describe the working principle of a single lens reflex camera. (12 marks)



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