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- exam

2404/306
2407/306
2411/306
LABORATORY PRACTICE
AND MANAGEMENT
Oct./Nov. 2018
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN APPLIED BIOLOGY
DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
DIPLOMA IN ANALYTICAL CHEMISTRY

LABORATORY PRACTICE AND MANAGEMENT

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 question in section **B** carries **20** marks.*
Maximum marks for each part of a question are indicated.
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. Explain **two** precautions to be taken when cryogenic liquids are in dewar flask. (4 marks)

2. Describe cleaning of glassware contaminated with a chemical stain. (4 marks)

3. State any **four** causes of explosion in the laboratory. (4 marks)

4. (a) Explain the importance of inventory records. (2 marks)

   (b) Describe a local purchase order (L.P.O). (2 marks)

5. Explain the effects of **not** fixing the photographic film during processing. (4 marks)

6. (a) State the storage of the following chemicals in the laboratory:

      (i) potassium; (1 mark)

      (ii) concentration sulphuric acid. (1 mark)

   (b) Describe decontamination process of a laboratory worker when leaving radioactive laboratory. (2 marks)

7. Describe leak detection in a vacuum system using testa coil. (4 marks)

8. State any **four** types of management power. (4 marks)

9. Name any **four** methods used for drying glassware. (4 marks)

10. State any **four** maintenance and care of projectors in the laboratory. (4 marks)

SECTION B (60 marks)

*Answer any **THREE** questions from this section.*

11. (a) Outline the exposure time during contact printing of photographs. (8 marks)

(b) Explain any **four** factors that can affect photographic film speed. (8 marks)

(c) State any **four** properties of a good flooring material. (4 marks)

12. (a) Outline production of medium vacuum. (10 marks)

(b) Explain the removal of gas plug from a dewar vessel. (5 marks)

(c) State any **five** uses of nitrogen gas in the laboratory. (5 marks)

13. (a) Highlight **ten** objectives of management by objectives (M.B.O) in management. (10 marks)

(b) State any **four** ways of settling labour or trade disputes. (4 marks)

(c) Outline stages involved in the process of coordination in management. (6 marks)

14. (a) Describe **five** preparedness measures in the laboratory. (14 marks)

(b) Draw a characteristic curve of pumping speed of:

(i) rotary pump; (3 marks)
(ii) diffusion pump. (3 marks)

15. (a) State any **five** methods used to produce vacuum. (5 marks)

(b) You are provided with the following items:

- 2 gm metol;
- 65 gm sodium bicarbonate;
- 8 gm hydroquinone;
- 0.5 gm potassium bromite.
- 32 gm sodium sulphite.
- 5 cm^3 wetting agent.
- 1 litre distilled water.

Describe the preparation of a developer solution using the above. (15 marks)

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