1903/102
APPLIED SCIENCE AND
LABORATORY PRACTICE
Oct/Nov. 2019
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN FOOD PROCESSING AND PRESERVATION TECHNOLOGY

MODULE I

APPLIED SCIENCE AND 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 **TWO** 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 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. State **four** homeostatic functions of the liver. (4 marks)

2. Using a chemical equation, describe the reaction between magnesium oxide and dilute hydrochloric acid. (4 marks)

3. Name **four** basic physical quantities of measurements. (4 marks)

4. State **four** benefits of wearing laboratory safety attire. (4 marks)

5. List **four** ways of preventing fungal attack on timber in a store room. (4 marks)

6. Name **four** sensory organs that can be used in textural evaluation of food in a food quality control laboratory. (4 marks)

7. Draw the structural formula of each of the following compounds:

   (a) 3-methyl hexane (2 marks)

   (b) 2, 3-dichlorobutane (2 marks)

8. Differentiate between strain and stress. (4 marks)

9. Describe how to care for a microscope in the laboratory. (4 marks)

10. Differentiate between orthographic and plan view as used in technical drawing. (4 marks)

11. State **four** properties of bases. (4 marks)

12. Explain **two** factors that affect centripetal force. (4 marks)

13. Figure 1 shows a motor neutron.

    (a) Name the parts labelled **A** and **B**. (2 marks)

    (b) Explain the function of the motor neutron in the body. (2 marks)

Transmit impulse from CNS to the effector.

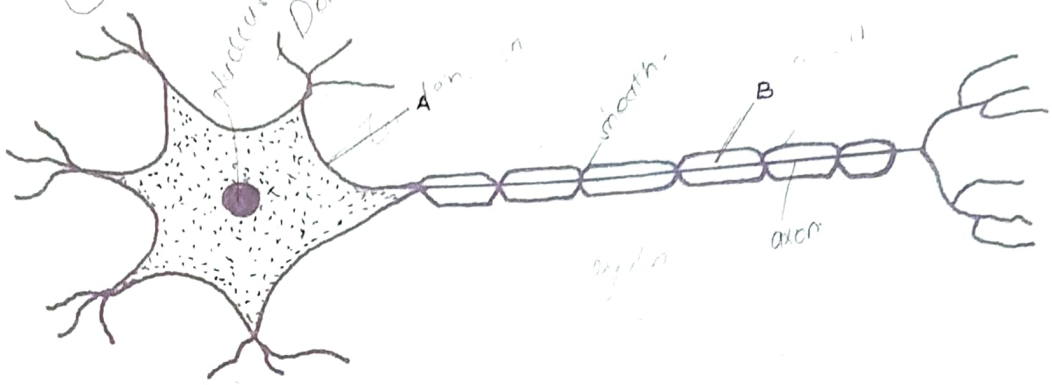

Fig. 1

14. (a) Explain the meaning of inertia. (2 marks)

(b) State Newton's first law of motion. (2 marks)

15. Explain the use of each of the following solutions in photography:

(a) fixer solution. (2 marks)

(b) developer solution. (2 marks)

SECTION B (40 marks)

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

16. (a) Figure 2 shows the internal structure of a broad bean seed. Identify the parts labelled **A**, **B**, **C** and **D**. (4 marks)

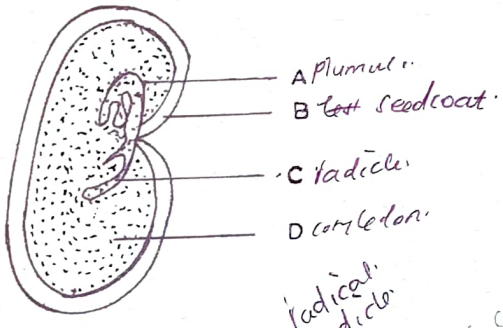

Fig. 2

(b) Explain **three** methods of birth control. (6 marks)

(c) Explain **five** detrimental effects of man's activities on the environment. (10 marks)

17. (a) Explain the meaning of diffraction of light. (2 marks)

(b) Describe **two** types of fluid flow. (4 marks)

(c) In an experiment to investigate the relationship between voltage (V) and current (I) for a conductor, the following results were obtained.

Potential difference (V)	2.0	3.0	4.0	5.0
Current (I)	1.0	1.5	2.0	3.0

Plot a graph of voltage (V) against current (I) and determine the resistance of the conductor. (10 marks)

(d) Explain the working principle of an A.C generator. (4 marks)

18. Discuss the safety precautions for the wood worker during workshop practice. (20 marks)

19. (a) Explain why copper is classified as a good conductor of electricity. (2 marks)

(b) Explain **four** applications of electrolysis. (8 marks)

(c) State **five** physical properties of alkyl halides. (5 marks)

(d) State **five** uses of alkyl halides. (5 marks)

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