

1904/205  
BIOLOGY TECHNIQUES II  
June/July 2023  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
CRAFT CERTIFICATE IN SCIENCE LABORATORY TECHNOLOGY

MODULE II

BIOLOGY TECHNIQUES II

3 hours

easytv.com

1205

**INSTRUCTIONS TO CANDIDATES**

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

*Answer ALL 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 indicated.*

*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. Describe the following classes of fruits, giving **one** example in each case:
  - (a) legumes; - bean (2 marks)
  - (b) caryopsis. - rice (2 marks)
2. (a) Define the term 'saprophytism'. (2 marks)  
 (b) List **two** examples of saprophytes. (2 marks)
3. (a) Distinguish between inspiratory reserve volume and expiratory reserve volume. (2 marks)  
 (b) Name **two** parts of the upper respiratory system in man. (2 marks)
4. State the location of each of the following glands:
  - (a) sublingual salivary gland; (1 mark)
  - (b) submandibular salivary gland; (1 mark)
  - (c) parotid salivary gland; (1 mark)
  - (d) gastric gland. - stomach (1 mark)
5. List **four** categories of plants based on their habitat. (4 marks)
6. Differentiate between pulmonary circulation and systematic circulation. (4 marks)
7. Describe glueing method of mounting dried plant specimen on a herbarium sheet. (4 marks)
8. State **four** functions of pelvic girdle in mammals. (4 marks)
9. Identify **four** chemicals used to process bones for museum preservation. (4 marks)
10. Define each of the following terms as used in ecology:
  - (a) ecosystem; (2 marks)
  - (b) denitrification. (2 marks)
11. Describe proper handling of guinea pig. (4 marks)

12. Illustrate an inverted pyramid of number showing all the trophic levels. (4 marks)
13. (a) Distinguish between epigeal germination and hypogeal germination. (2 marks)
- (b) List **two** conditions necessary for seed germination. (2 marks)
14. Identify **four** mechanisms of seeds and fruits dispersal. (4 marks)
15. Name **four** types of vegetative propagation. (4 marks)

**SECTION B** (40 marks)

*Answer any TWO questions from this section.*

16. (a) Describe the process of fertilization in human beings. (12 marks)
- (b) State the functions of each of the following during embryo development:
- (i) chorion; (2 marks)
- (ii) amniotic fluid; (2 marks)
- (iii) umbilical cord. (4 marks)
17. (a) Giving specific examples, describe the reabsorption of various materials in the proximal convoluted tubules. (10 marks)
- (b) Explain **five** factors that affect the rate of diffusion of gases at the alveoli. (10 marks)

18. (a) Figure I represents a part of mammalian skeleton.

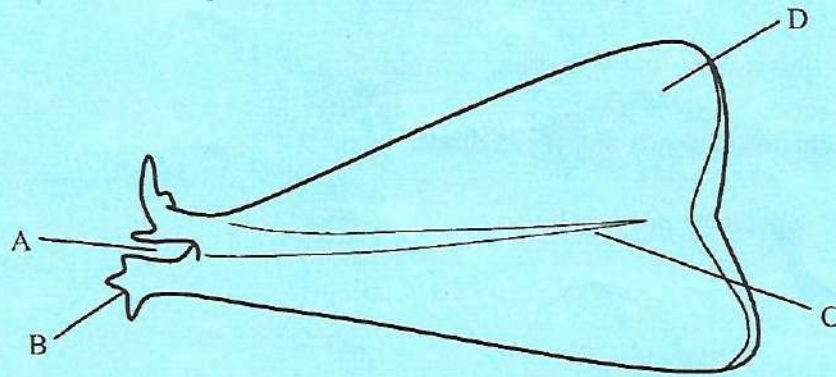


Fig. 1

1205

- (i) Identify the bone. *Scapula* (1 mark)
- (ii) Name the parts labelled A, B, C and D. (4 marks)
- (iii) State the function of the part labelled C. (1 mark)
- (iv) Identify the bone that articulates with the part labelled B. (1 mark)
- (v) State the type of joint formed at the part labelled B when it articulates with the bone named in (iv). (1 mark)
- (b) Differentiate between sperm and ovum in mammals. (12 marks)
19. (a) Describe **eight** methods used for pest control in a herbarium. (16 marks)
- (b) Highlight **four** functions of a museum. (4 marks)

**THIS IS THE LAST PRINTED PAGE.**