

2914/202

TAXONOMY, ANATOMY AND PHYSIOLOGY

June/ July 2020

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN APPLIED BIOLOGY

MODULE II

TAXONOMY, ANATOMY AND PHYSIOLOGY

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.

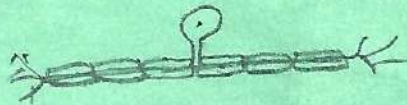
This paper consists of 3 printed pages.

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 questions in this section.

1. Define each of the following terms:
 - (a) bilateral symmetry; (1 mark)
 - (b) acoelomate; (1 mark)
 - (c) triploblastic; (1 mark)
 - (d) cephalothorax. (1 mark)
2. Describe the external features of class Arachnida. (4 marks)
3. Differentiate between the subclasses of Myriapoda. (4 marks)
4. Differentiate between conifers and angiosperms. (4 marks)
- ~~5.~~ State **four** characteristics of the phylum Mollusca. (4 marks)
- ~~6.~~ Define each of the following excretion methods in plants:
 - (a) guttation; (2 marks)
 - (b) organ fall. (2 marks)
7. Highlight the distinguishing features of adult sponges. (4 marks)
- ~~8.~~ Describe geotropism in plants. (4 marks)
- ~~9.~~ Describe the adaptations of amphibians to terrestrial life. (4 marks)
- ~~10.~~ Draw a labelled diagram of a sensory neuron. (4 marks)



SECTION B (60 marks)

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

11. Figure 1 represents diagrams of various invertebrates.

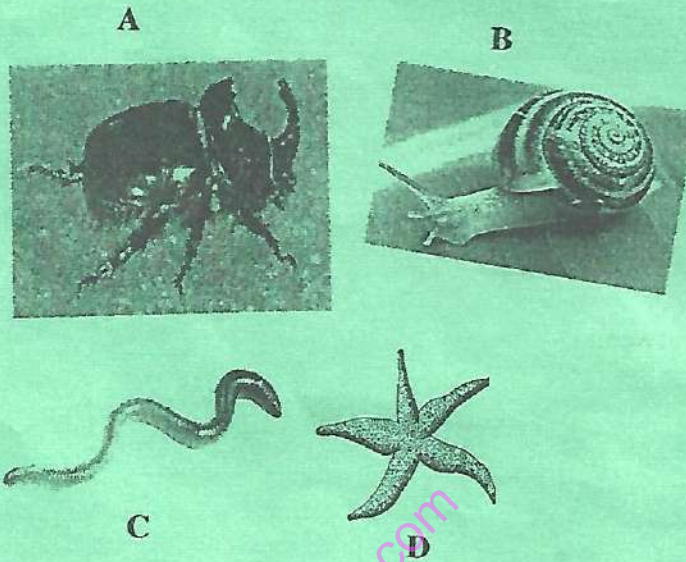


Fig. 1

- (a) Name the phylum to which each of the organisms labelled A, B, C and D belong. (4 marks)
- (b) Describe the characteristics of the phylum to which organism C belongs. (10 marks)
- (c) Explain the adaptations of insects to terrestrial life. (6 marks)

12. Relate the structure of the mammalian skin to its function. (20 marks)

- (a) Relate the structure of the red blood cells to their function. (8 marks) ✓
- (b) Describe blood flow in the mammalian heart. (12 marks) ✓

14. (a) Explain **six** adaptations of a leaf to photosynthesis. (12 marks) ✓

(b) Explain the light stage of photosynthesis. (8 marks) ✓

15. (a) (i) Draw a labelled diagram of the areolar tissue. (10 marks)

(ii) State the functions of the cells labelled in (i). (5 marks)

(b) Draw a labeled diagram of the xylem tissue. (5 marks)

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