

000126884

Name Index Number

231/3
BIOLOGY
Paper 3
(PRACTICAL)
Nov. 2016
1¾ hours

Candidate's Signature

Date



THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
BIOLOGY
Paper 3
(PRACTICAL)
1¾ hours

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of examination in the spaces provided above.
- (c) Answer **all** the questions in the spaces provided.
- (d) You are required to spend the first 15 minutes of the 1¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
- (e) Additional pages must **not** be inserted.
- (f) **This paper consists of 6 printed pages.**
- (g) **Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**
- (h) **Candidates should answer all the questions in English.**

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	14	
2	13	
3	13	
Total Score	40	



1. You are provided with specimen G.

- (a) (i) Cut off the petiole, about 1.5 cm from the end where the leaf attaches to the stem.
- (ii) Carefully make several thin cross sections through the piece obtained in (a)(i) above, using a sharp razor blade or scalpel.
- (iii) Put the sections obtained in water on a Petri dish.
- (iv) Mount the thinnest section(s) on a glass slide, add a drop of iodine solution provided.
- (v) Observe the section(s) using a hand lens, then draw a labelled diagram of the section observed. (3 marks)

(b) Account for the following features of specimen G.

- (i) Extensive network of veins (1 mark)
.....
- (ii) Tough leaf blade (1 mark)
.....
- (iii) Strong and extended petiole (1 mark)
.....

(c) State with reasons, the class of plants from which the specimen was obtained.

Class (1 mark)

Reasons:

..... (3 marks)

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(d) Explain why the following procedures were necessary during the preparation of the sections for observation.

(i) Putting the sections in water on a Petri dish. (1 mark)

.....

(ii) Using a sharp scapel/razor blade. (1 mark)

.....

(iii) Adding iodine solution to the section. (1 mark)

.....

(iv) Cutting very thin sections. (1 mark)

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2. Study the photograph below of some animals in a certain ecosystem and answer the questions that follow.



(a) State the type of biotic relationship exhibited by the animals shown in the photograph. (1 mark)

.....

(b) (i) Identify which of the two animals, E and F, will have the least biomass? (1 mark)

.....

(ii) Give a reason for your answer in (b)(i) above. (2 marks)

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.....

(c) Explain the concept of "Survival for the fittest" in relation to the organisms illustrated in the photograph. (3 marks)

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(d) Explain **three** visible survival adaptive features for the organisms illustrated in the photograph. (6 marks)

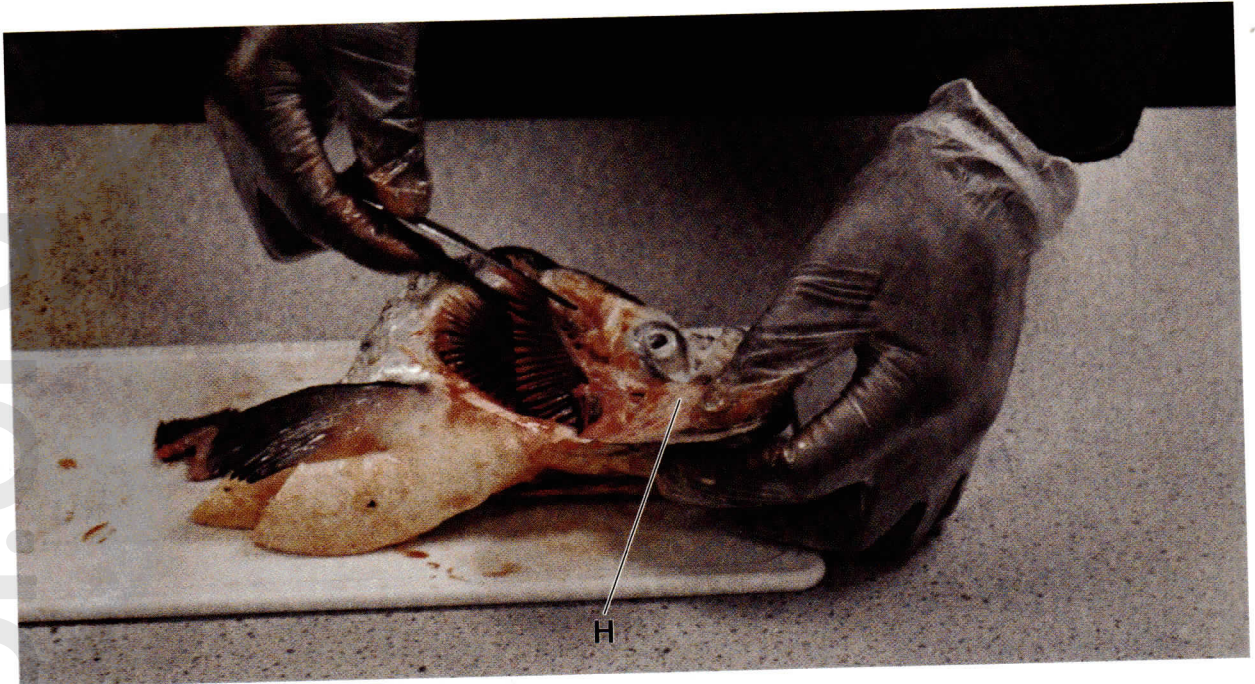
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3. The photograph below illustrates a procedure carried out to study gaseous exchange structures in a certain organism.



- (a) Identify **two** dissecting tools being used in the procedure illustrated. (2 marks)

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- (b) (i) Name the class of the animal in use. (1 mark)

.....

- (ii) State any **two** visible characteristics from the photograph to support your answer in (b)(i) above. (2 marks)

.....

- (c) Name the part of the organism labelled H and state its function.

Name: (1 mark)

Function: (1 mark)

(d) (i) Draw the gaseous exchange structure under study and on it, label the site for gaseous exchange. (3 marks)

(ii) How is the part labelled in (d)(i) adapted to efficient gaseous exchange? (3 marks)

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