

231/3

— **BIOLOGY** —
(PRACTICAL)

Paper 3



Nov. 2019 – 1¾ hours

Name Index Number

Candidate's Signature Date

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 7 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 the questions in English.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	13	
2	12	
3	15	
Total Score	40	

200

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Turn over

1 You are provided with specimens **F** and **G**, obtained from different plant species. Observe them together with photographs **E** and **H** and answer the questions that follow.

Note: Do not destroy specimens **F** and **G** as you will need them for question 2.



E



H

(a) (i) State how plants represented by specimen **F** and photographs **E** and **H** protect themselves.

Specimen **F** (1 mark)

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.....

Photograph **E** (1 mark)

.....
.....

Photograph **H** (1 mark)

.....
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(ii) State the likely habitat of each of the plants in (a) (i), giving a reason in each case.

Specimen **F** (2 marks)

Habitat

Reason

.....

Photograph **E** (2 marks)

Habitat

Reason

.....

Photograph **H** (2 marks)

Habitat

Reason

.....

(b) Examine the leaves of specimen **G**.

(i) Describe **two** observable features of these leaves that help the plant conserve water. (2 marks)

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(ii) Besides leaf structure, explain **two** mechanisms that help the plant in (b) (i) above **not** to dry up during the dry season. (2 marks)

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2. You are provided with specimens labelled **J** and **K** in addition to **F** and **G** and photographs **E** and **H** (used in question 1).

(a) Follow the dichotomous key below to identify **E**, **F**, **G**, **H**, **J** and **K**.

- 1. (a) Leaf margin smooth Go to 2
- (b) Leaf margin serrated/rugged Go to 3
- 2. (a) Leaf parallel-veined **K**
- (b) Leaf net-veined or veins not showing Go to 4
- 3. (a) Leaf with thorny edges **H**
- (b) Leaf edges not thorny Go to 5
- 4. (a) Leaf large **G**
- (b) Leaf tiny **E**
- 5. (a) Leaf on thorny stem **F**
- (b) Leaf not on stem **J**

Fill the table below, indicating the steps used to identify the leaves of each specimen or photograph. (6 marks)

Leaf	Steps followed
E	
F	
G	
H	
J	
K	

(b) (i) Besides leaf features found in the dichotomous key above, state **two** other features that can be used to identify leaves. (2 marks)

.....

.....



- (ii) State the complementary characteristics that define the leaf features stated in (b) (i). (2 marks)

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.....

- (c) The habit of a plant in its environment is referred to as being a tree, shrub or herb, depending on its height.

Suggest the habits of the plants from which specimen **F** and photograph **H** were obtained. (2 marks)

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3. You are provided with specimens **L** and **M** which are types of teeth from the same mammal. Observe these specimens together with photographs **N** and **P** and answer the questions that follow.

- (a) (i) With a reason in each case, name the type of tooth represented by specimens **L** and **M**.

Specimen **L** (2 marks)

Name:

Reason

.....

Specimen **M** (2 marks)

Name:

Reason

.....

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K.C.S.E

(ii) Draw and label specimen L. (2 marks)

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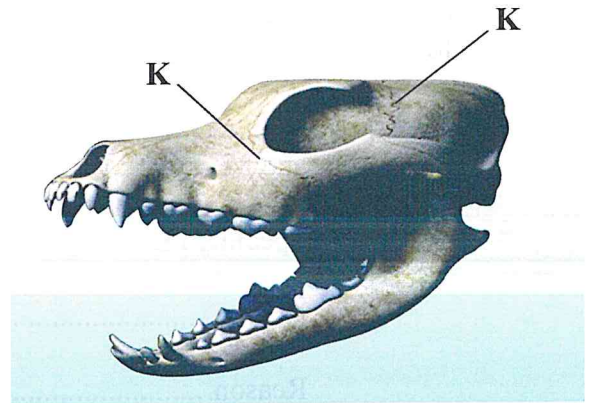
(iii) State two functional differences between specimens L and M. (2 marks)

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(b) State the diet of the mammals from which photographs N and P below were obtained, giving a reason in each case.



N



P

(i) Photograph N (2 marks)

Diet

Reason

.....
.....

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(ii) Photograph P (2 marks)

Diet

Reason

.....

.....

(c) (i) Name the joint labelled K on photograph P. (1 mark)

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(ii) Explain **two** features of the joint named in (c) (i) above that makes it adapt to its function. (2 marks)

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