

4.3.3 Biology Paper 3 (231/3)

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)

Photograph **E** (1 mark)

Photograph **H** (1 mark)

(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

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

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)

- (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)

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

- (ii) Draw and label specimen **L**.

(2 marks)

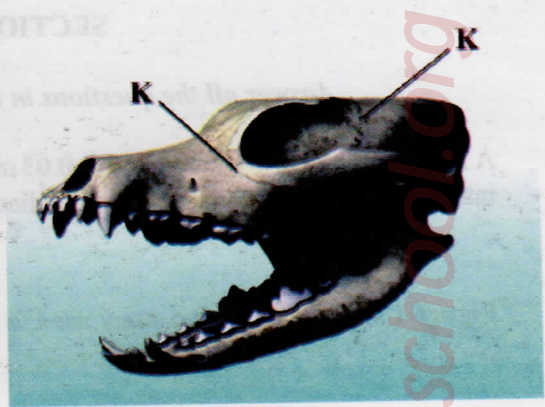
- (iii) State **two** functional differences between specimens **L** and **M**.

(2 marks)

- (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

- (ii) Photograph **P**

(2 marks)

Diet

Reason

- (c) (i) Name the joint labelled **K** on photograph **P**.

(1 mark)

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

(2 marks)