THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education

231/3

– BIOLOGY – (PRACTICAL)

Paper 3

Apr. 2021 – 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	14	
3	13	
Total Score	40	

339

A499

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1. You are provided with a piece of specimen **N** and the following reagents:

- Dilute hydrochloric acid
- Dilute sodium hydroxide
- Dilute hydrogen peroxide
- Water

You have also been provided with the following apparatus:

- Three test tubes
- 10 ml measuring cylinder
- Scalpel

Procedure

(i) Label the test tubes **1**, **2** and **3**.
(ii) Macerate (chop into tiny pieces) half of specimen **N**.
(iii) Place equal amounts of the macerated specimen into test tubes **1** and **2**.
(iv) Cut the remaining half of the specimen into two equal pieces.
(v) Place one piece into test tube **3** and reserve the remaining piece.
(vi) Add about 2 cm^3 of dilute hydrochloric acid into test tube **1**, add about 2 cm^3 of sodium hydroxide into each of test tubes **2** and **3**.
(vii) Add about 5 cm^3 of hydrogen peroxide into each of the three test tubes, **1**, **2** and **3**.

(a) Observe the amount of effervescence in each test tube and complete the table below.

Test tube	Contents	Amount of effervescence observed	Explanation
1			
2			
3			

(10 marks)

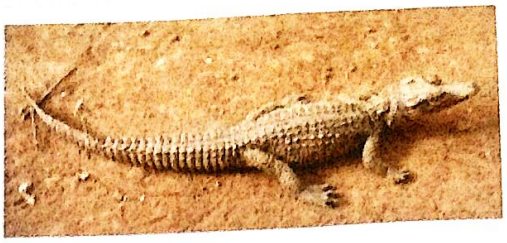
(b) Use the reagents provided to test for the food substance present in the piece of specimen **N** reserved from (a). Observe and record in the table below.

Procedure	Observation	Conclusion

(3 marks)

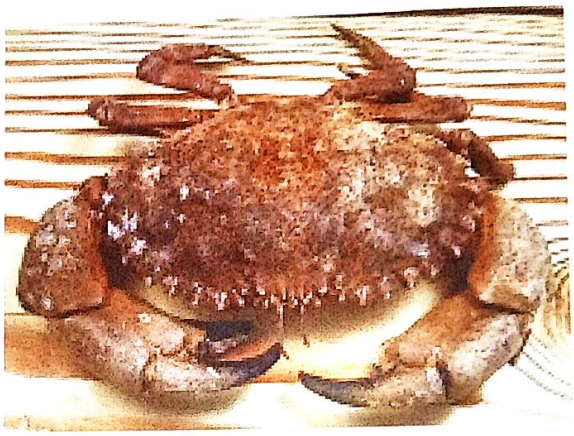
2. You are provided with photographs **E**, **F**, **K** and **H**, together with specimens **G**, **J**, **L** and **M**.

E



K

F



H

Using observable features in the photographs and specimens provided:

(a) Place with a reason, each of the following organisms in their respective Kingdom, Division or Phylum.

(i) **G** (2 marks)

Division .....

Reason .....

(ii) **E** (2 marks)

Kingdom .....

Reason .....

(iii) **M** (2 marks)

Division .....

Reason .....

(iv) **H** (2 marks)

Phylum .....

Reason .....

(b) State ***two*** features in the following organisms that make them to be placed in different Classes:

(i) **F** and **K** (2 marks)

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(ii) **J** and **M** (2 marks)

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(c) Make a labelled diagram of specimen **L**. (1 mark)

(d) Explain the difference in the mode of reproduction exhibited by **E** and **J.** (1 mark)

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3. You are provided with a specimen labelled **P** on a tile.

(a) (i) Name the Class to which the specimen belongs. (1 mark)

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(ii) Give ***three*** reasons for your answer in (a)(i) above. (3 marks)

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(b) State ***three*** ways by which the organism is adapted to movement in its habitat. (3 marks)

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(c) State ***two*** functions of the part labelled **Q**. (2 marks)

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(d) Carefully lift the part labelled **Q** and observe the underlying structure.

(i) State the ***main*** function of the underlying structure observed. (1 mark)

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(ii) State ***three*** ways by which the structure is adapted to its function. (3 marks)

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