

231/3

— **BIOLOGY** —  
(PRACTICAL)

Apr. 2021 – 1<sup>3</sup>/<sub>4</sub> hours



Name ..... Index Number .....

Candidate's Signature ..... Date .....

**Instructions to Candidates**

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- (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 1<sup>3</sup>/<sub>4</sub> 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	
<b>Total Score</b>	<b>40</b>	

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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<sup>3</sup> of dilute hydrochloric acid into test tube **1**, add about 2 cm<sup>3</sup> of sodium hydroxide into each of test tubes **2** and **3**.
  - (vii) Add about 5 cm<sup>3</sup> 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)

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



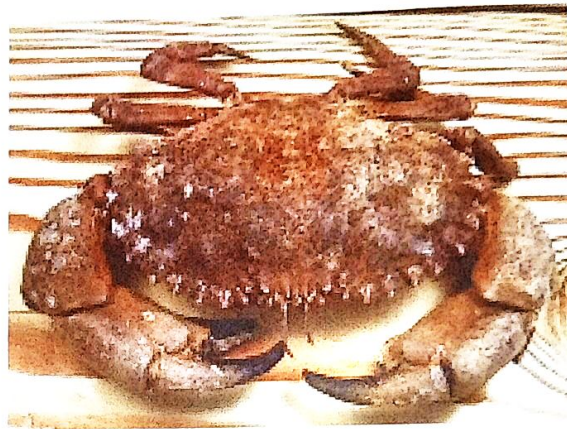
E



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 .....

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(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)

.....  
.....  
.....

(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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