

Surname	Centre Number	Candidate Number
Other Names		2



GCE AS/A level

1072/01

BIOLOGY – BY2

P.M. MONDAY, 21 May 2012

1½ hours

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	5	
2	6	
3	6	
4	8	
5	8	
6	11	
7	16	
8	10	
Total	70	

1072
010001

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

The quality of written communication will affect the awarding of marks.

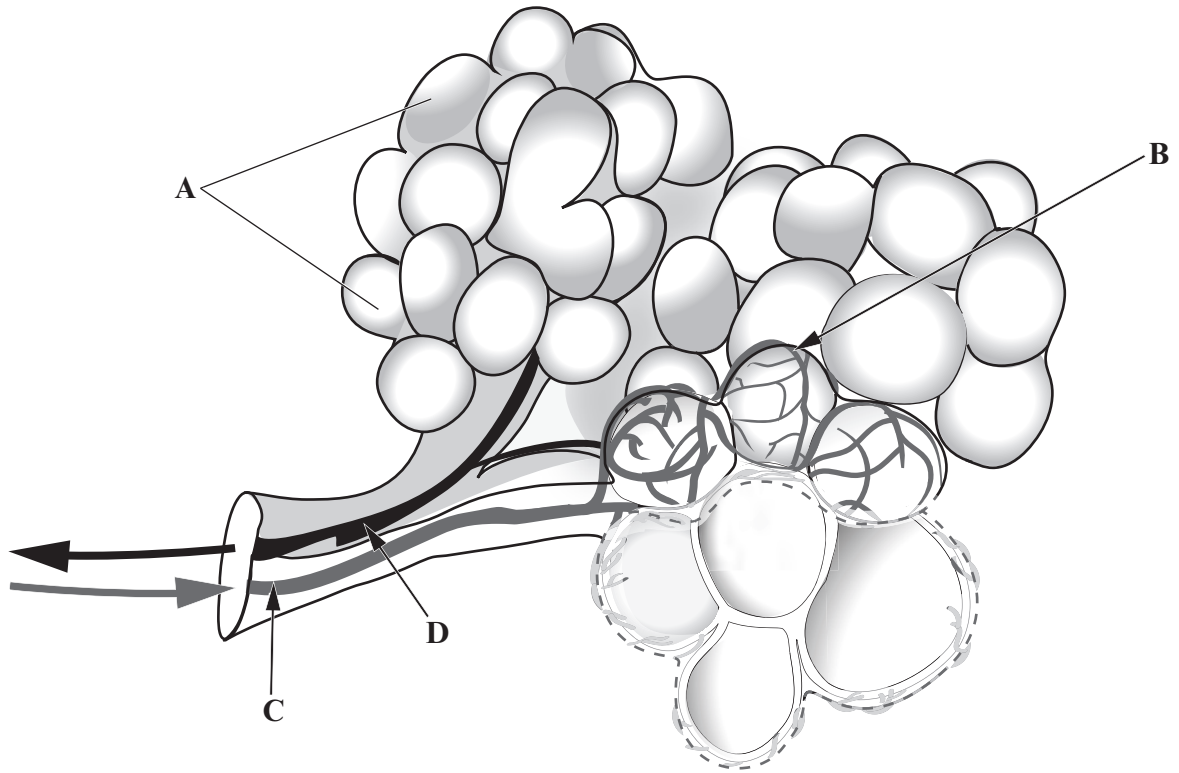
1. Complete the following table using the characteristics to identify each kingdom.

[5]

<i>Characteristics</i>	<i>Kingdom</i>
Heterotrophic eukaryotes Cell wall of chitin Reproduce by spores	
Heterotrophic Multicellular eukaryotes No cell wall Nervous coordination	
Eukaryotes Single celled No tissues differentiation	
Unicellular Microscopic No membrane bound organelles Cell wall not cellulose Cell wall made of murein	
Multicellular eukaryotes Photosynthetic Cellulose cell wall	

(Total 5 marks)

2. The image below shows part of the lung viewed under high magnification. The arrows indicate direction of blood flow.



- (a) (i) Identify the structures **A** and **B**. [1]

A

B

- (ii) Identify the blood vessels which connect **C** and **D** to the heart. [1]

C

D

- (b) State two important structural features of **A** visible in the diagram. [2]

1

2

- (c) Briefly explain how inspiration is brought about. [2]

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(Total 6 marks)

3. Define the following terms and give an example of a different organism for each. [6]

Parasite

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Example

Autotroph

.....
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Example

Saprophyte or saprobiont

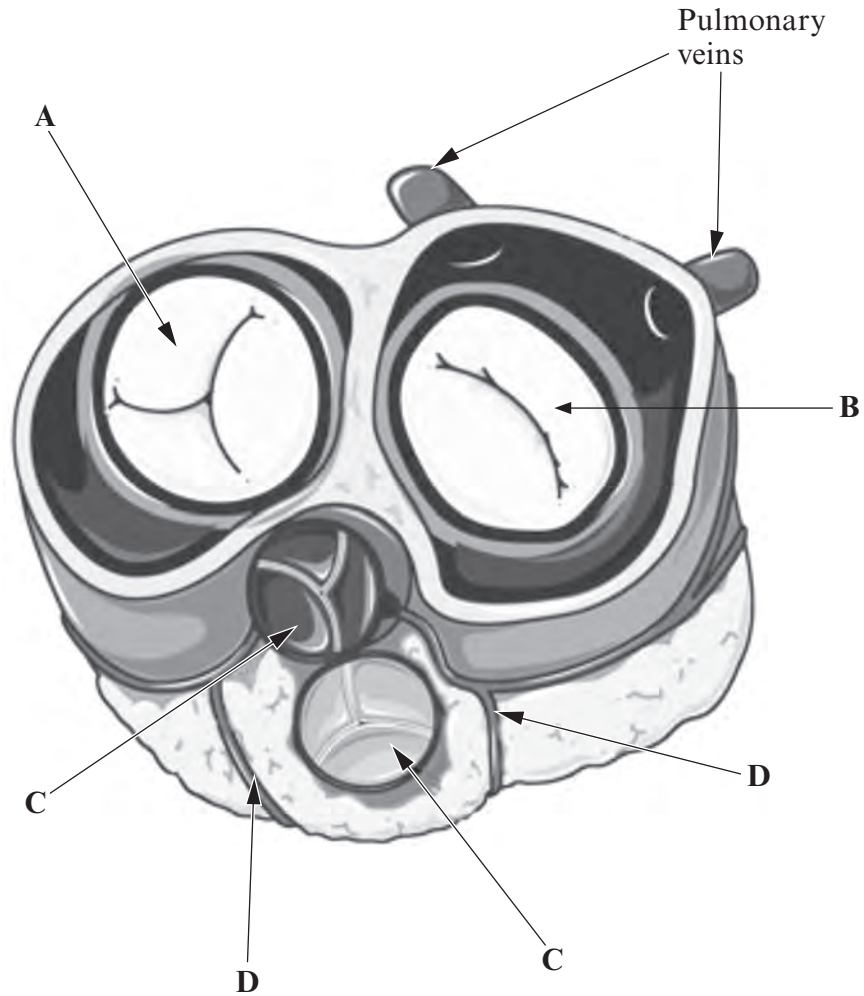
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Example

(Total 6 marks)

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4. The diagram below shows a section of a human heart, cut just above the heart valves, as seen from above.



- (a) Name valves **A**, **B** and **C**.

[3]

A

B

C

- (b) Name blood vessels **D** which are found on the surface of the heart and explain their function.

[2]

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- (c) (i) Explain why valve **B** often has to be replaced because it ceases to work effectively and why valve **A** rarely needs replacing. [1]

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- (ii) What would happen to the flow of blood if the valve is damaged? [1]

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- (iii) Suggest **one** symptom a person with a failing valve **B** may have. [1]

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(Total 8 marks)

5. The photograph below shows a scanning electron micrograph of fish gills.

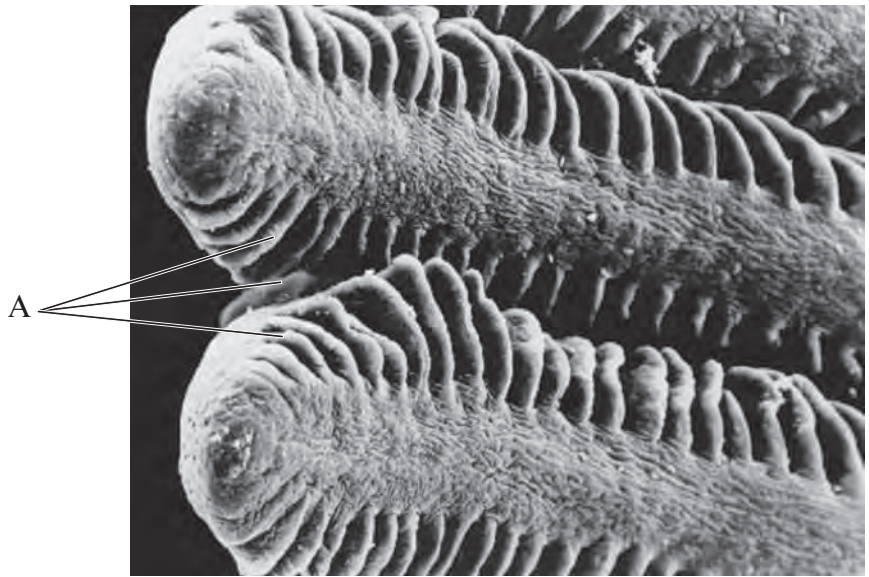


Photo courtesy of Electron Microscopy Unit, Royal Holloway University of London

(a) Identify structures A. [1]

(b) Using the photograph above and your own knowledge, describe **three** features of fish gills which allow them to achieve efficient gas exchange. [3]

- 1.
- 2.
- 3.

(c) Water is a dense medium with a low oxygen content. Explain how bony fish have overcome the problems of oxygen uptake in water. [4]

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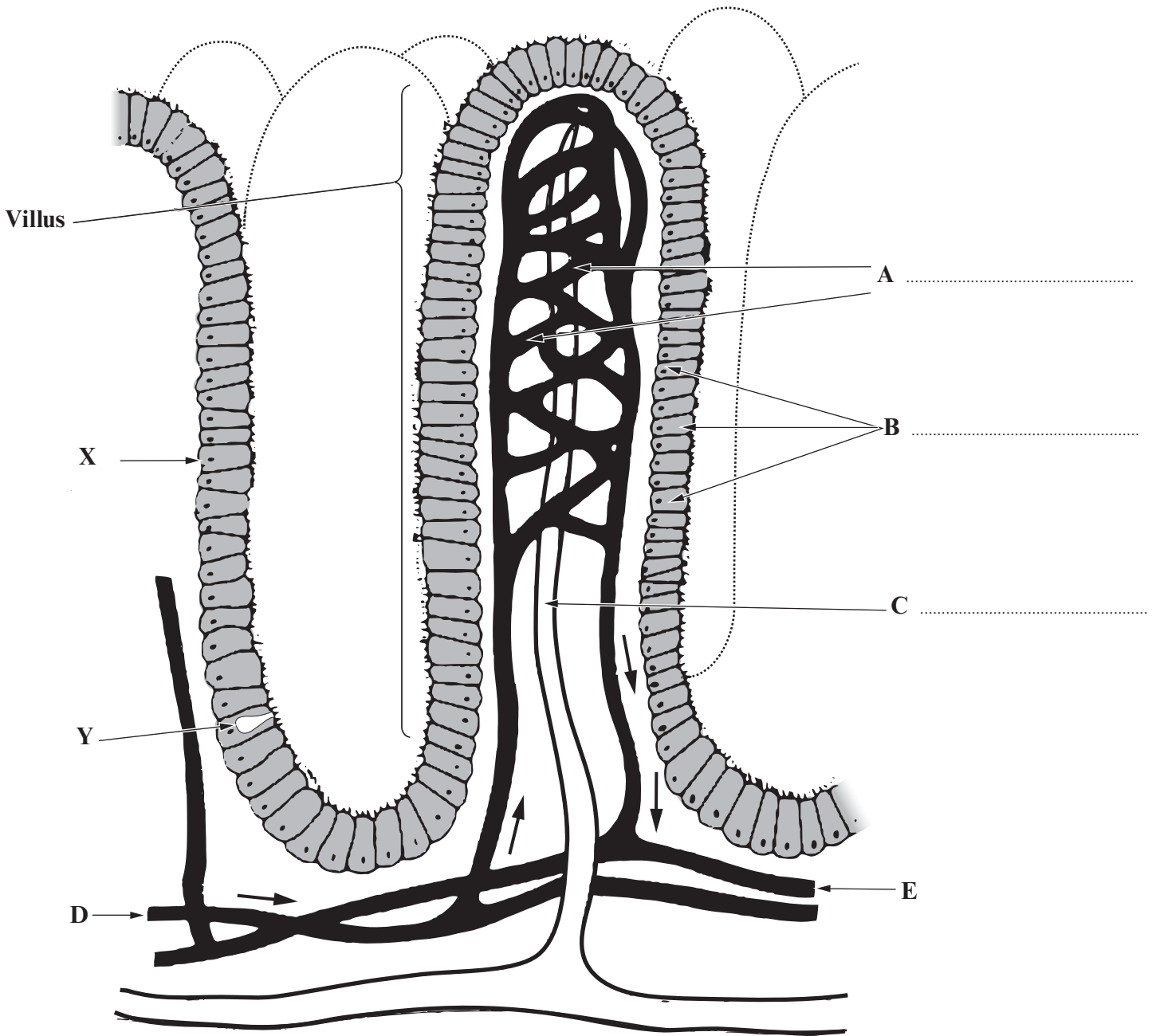
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(Total 8 marks)

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6. The following diagram shows a longitudinal section of the small intestine.



(a) Complete the diagram by labelling structures **A**, **B** and **C**.

[3]

(b) Identify the types of blood vessels shown by **D** and **E**.

[2]

D

E

(c) Describe **two** features associated with cell **X** and explain why each is important for the cell to function efficiently. [4]

Feature 1

Importance

.....

.....

Feature 2

Importance

.....

.....

(d) Cell **Y** is vital to the functioning of the intestine. What is the name of this cell and what is its function? [2]

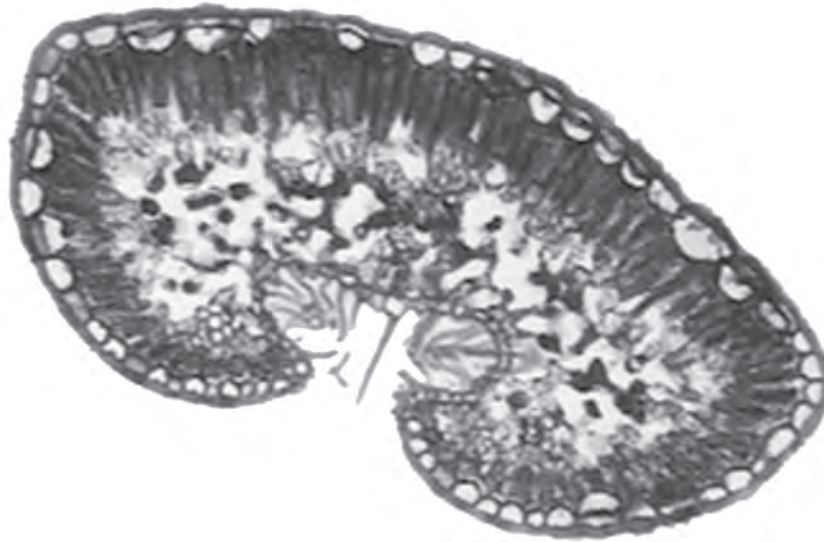
Name

Function

(Total 11 marks)

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7. The photograph below shows a transverse section through the leaf of heather (*Erica cinerea*). This heather lives in a dry, windy environment.



- (a) (i) State **three** features of the leaf shown above which indicate that it lives in a dry environment. [3]

Feature 1

Feature 2

Feature 3

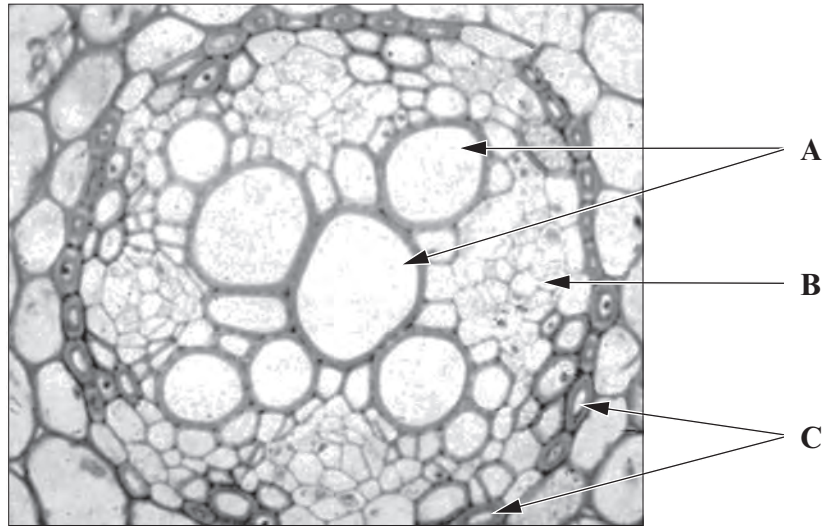
- (ii) Explain how any **one** of these features help *Erica* live in a dry environment. [1]

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- (b) What name is given to plants that live in dry environments? [1]

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- (c) The diagram below shows a transverse section of a buttercup (*Ranunculus sp.*) root as seen under high power with a light microscope.



- (i) Name tissue **A** and explain its role in the plant. [2]

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- (ii) Name tissue **B** and explain its role in the plant. [2]

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- (iii) Name cells **C**. [1]

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- (iv) Draw a simple longitudinal section of cell C clearly labelling the special feature of this cell. [2]

- (v) Explain how cell C carries out its function in the uptake of water and minerals in the plant. [4]

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(Total 16 marks)

8. Answer **one** of the following questions.
Any diagrams included in your answer must be fully annotated.

Either, *(a)* Distinguish between the two types of reproduction used by organisms and state the advantages and disadvantages of each. [7]

Explain how the reproductive strategies of flowering land plants have led to their success. [3]

Or *(b)* Explain what is meant by transpiration. Describe the factors affecting transpiration. [7]

Describe how you could use a potometer to investigate one of these factors. [3]

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