



BOTSWANA EXAMINATIONS COUNCIL
 in collaboration with
 UNIVERSITY OF CAMBRIDGE LOCAL EXAMINATIONS SYNDICATE
 Botswana General Certificate of Secondary Education

CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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BIOLOGY

0572/03

Paper 3

October/November 2009

1 hour 15 minutes

Additional Materials: Answer paper

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided at the top of this page.
DO NOT WRITE IN ANY BARCODES.

Section A

Answer **all** questions.
 Write your answers in the spaces provided on the question paper.

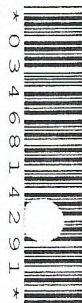
Section B

Answer **both** questions.
 Write your answers on the separate answer paper provided.

Write your Centre number, candidate number and name on each sheet of answer paper you use.
 At the end of the examination fasten all sheets of answer paper to this question paper using the string provided.
 You may use a calculator.
 Do not use staples, paper clips, highlighters, glue or correction fluid.

The number of marks is given in brackets [] at the end of each question or part question.
 You are advised to spend no longer than 40 minutes on Section A.

For Examiner's Use	
Section A	
Section B	



Section A

Answer **all** questions in this section in the spaces provided.

- 1 Fig. 1.1 shows a type of circulatory system known as a single circulatory system. Arrows represent the direction of blood flow.

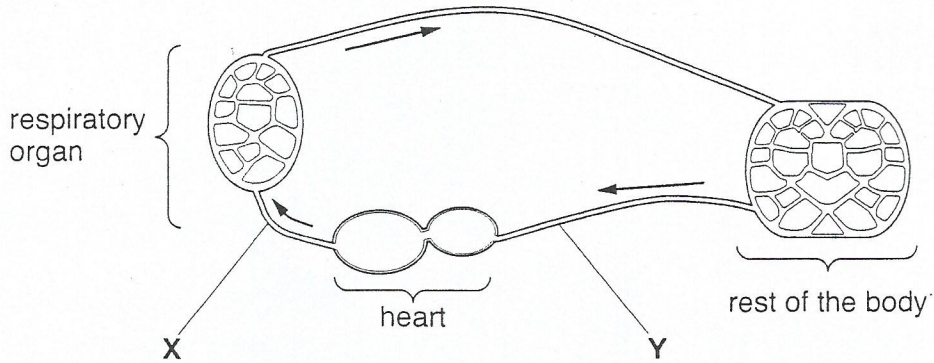


Fig. 1.1

- (a) Identify the type of blood vessels X and Y.

X

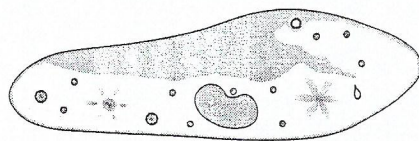
Y [2]

- (b) Indicate with letter P on the diagram where blood gains oxygen. [1]

- (c) Suggest and explain **one** problem that might be encountered if Man had a single circulatory system.

.....
 [1]

- (d) Fig. 1.2 shows a unicellular organism found in fresh water.



magnification X700

Fig. 1.2

blood circulatory

2 Malaria is an insect borne disease caused by a protozoon.

(a) State **one** symptom of malaria.

..... [1]

(b) State **two** characteristics of protozoa.

.....
..... [2]

(c) Describe the role of mosquitoes in the transmission of malaria.

.....
.....
.....
..... [5]

(d) What measures can be taken against an adult mosquito in order to control malaria?

.....
..... [2]

[Total: 10]

3 Fig. 3.1 shows four seedlings W, X, Y and Z that have been set up to investigate their response to unidirectional light.

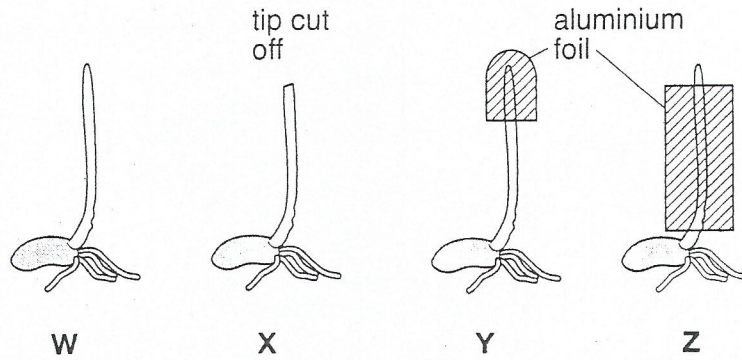


Fig. 3.1

(a) Describe briefly a set up that could be used to ensure that seedlings receive light from one direction.

..... [1]

(b) Predict the appearance of the shoots after several days in unidirectional light.

W ..
X ..
Y ..
Z .. [4]

(c) Which part of the seedling is sensitive to light?

..... [1]

(d) (i) What name is given to the growth response to light?

..... [1]

(ii) Explain how this growth response is caused.

..... [4]

[Total: 11]

4 Table 4.1 shows the number of different groups of people who died from bronchitis.

Table 4.1

group of people	no. of deaths per 100
non smoker	7
light smoker	20
heavy smoker	42

(a) (i) What general pattern can be drawn from the table?

..... [1]

(ii) What effect does smoking have on the bronchioles?

..... [2]

(iii) Smokers usually suffer from shortness of breath.

Suggest how this is brought about.

.....

(b) Describe how cigarette smoking causes emphysema.

..... [4]

[Total: 12]

Section B

Answer **both** questions.

Write your answers on the separate answer paper provided.

- 5 (a) Name the **two** sections of the small intestine and describe the functions of each part. [10]
 (b) Describe the roles of the pancreas and the liver in the regulation of blood sugar. [5]
Stomach Duodenum Jejunum Ileum Villi
Gallbladder
 [Total: 15]
- 6 (a) Explain why a kidney is considered to be an excretory organ. [2]
 (b) With reference to the kidneys describe the
 (i) filtration of the blood
 (ii) re-absorption. [10]
 (c) Describe and explain how urine composition changes during a sunny day. [3]
 [Total: 15]