

Candidate Name _____

Centre Number				Candidate Number									

EXAMINATIONS COUNCIL OF ZAMBIA

Joint Examination for the School Certificate
and General Certificate of Education Ordinary Level

BIOLOGY

5090/2

PAPER 2 Theory

Friday

2 NOVEMBER 2012

Additional materials:
Answer Booklet

TIME: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page and on the **Answer Booklet** used.

There are **ten** questions in this paper.

Section A

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Section B

Answer any **three** questions.

Write your answers in the Answer Booklet provided.

At the end of the examination:

1. fasten the Answer Booklet used securely to the question paper,
2. **enter** the numbers of the Section B questions you have answered in the grid on the bottom right side corner.

INFORMATION FOR CANDIDATES

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 one hour on Section A and no longer than 45 minutes on Section B.

Cell phones are not allowed in the examination room.

FOR EXAMINER'S USE	
Section A	
Section B	
Total	

Section A [44 marks]

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

- 1** **Figure 1.0** is a graph showing changes in volume of air during breathing in the lungs of a person.

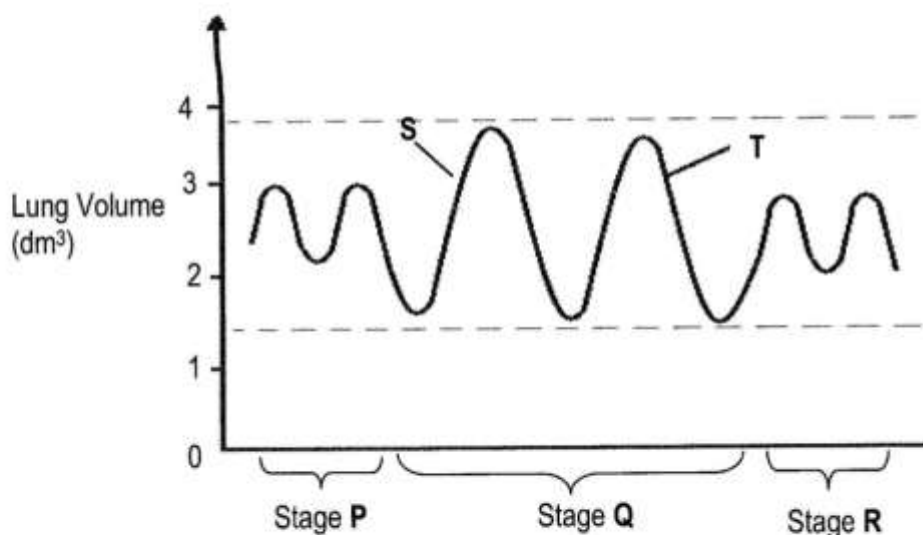


Figure 1.0

- (a) (i) Which letter shows the process of inspiration taking place?

..... [1]

- (ii) Suggest activities taking place at stages **P**, **Q** and **R**.

P

Q

R [3]

- (b) Explain why there is an increase in air volume during stage **Q**.

..... [1]

- (c) Describe the changes which will take place in the thorax during inspiration in order to facilitate the increase in volume during stage **Q**.

.....

.....

[3]
[Total 8]

- 2 (a) The table below shows the blood groups in human beings.

A	B	AB	O
---	---	----	---

- (i) Which **two** blood groups exist in two different forms?

Blood group and blood group [2]

- (ii) Which blood group can be donated to any person?

..... [1]

- (iii) Which blood group can receive any other group of blood?

..... [1]

- (b) Outline the five steps involved in blood clotting.

1.
2.
3.
4.
5. [5]

[Total 9]

3 **Figure 3.0** shows some fruits from dicot plants.

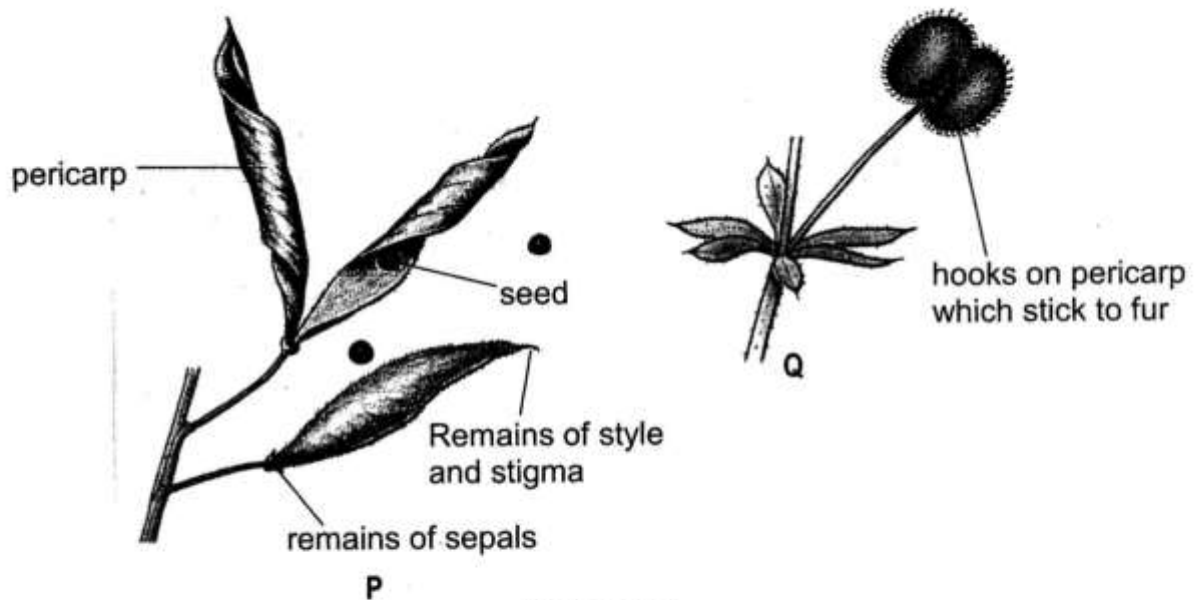


Figure 3.0

(a) (i) State the type of dispersal each fruit undergoes.

Fruit P

Fruit Q [2]

(ii) Give a reason for your answer in (a) (i) above for each fruit.

Fruit P

.....

Fruit Q

..... [2]

(b) (i) Which fruit disperses seeds over a short distance?

..... [1]

(ii) Which dispersal will involve seeds and not the fruit?

..... [1]

(c) Give **three** differences between Fruit Q and a tomato.

1.

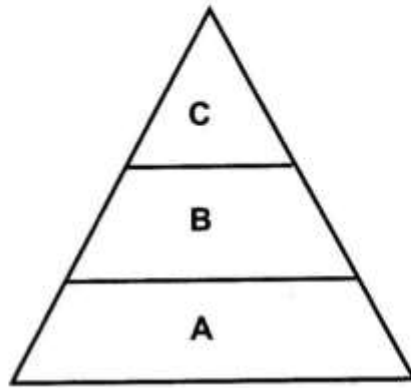
2.

3.

[3]

[Total 9]

- 4 The figure below shows a pyramid of biomass.



- (a) (i) Identify trophic levels **B** and **C**.

B

C [2]

- (ii) State the names given to organisms that feed at trophic levels **B** and **C**.

B

C [2]

- (iii) Explain why level **C** is much smaller than the other levels.

.....

..... [2]

- (b) Describe the flow of energy in the pyramid.

.....

.....

.....

.....

..... [3]

[Total 9]

- 5 **Figure 5.1** and **Figure 5.2** show the cross section through two different portions of the human alimentary canal.

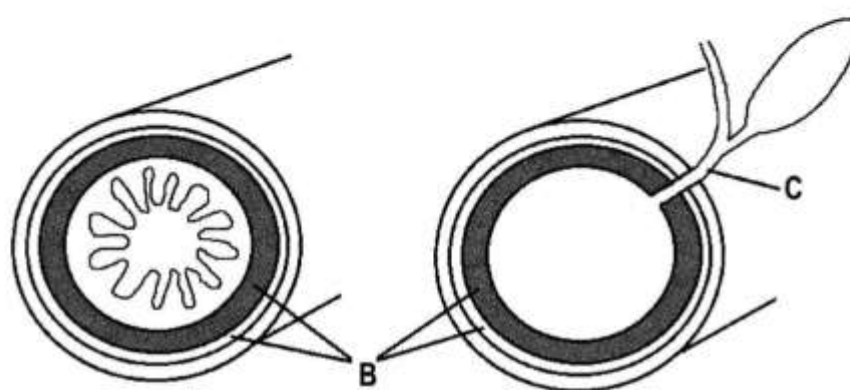


Figure 5.1

Figure 5.2

- (a) (i) From which part of the alimentary canal were these cross sections taken?

Figure 5.1

Figure 5.2

- (ii) Give reasons for your answers in (a) (i) above.

Reason 1:

.....

Reason 2:

.....

[4]

- (b) Explain the role played by **B** in the alimentary canal.

.....

.....

.....

[3]

- (c) Name **two** juices passing through tube **C**.

1.

2.

[2]

[Total 9]

Section B [36 marks]

Answer any **three** questions.

All answers should be in sentence form in paragraphs.

- 6 (a) Explain the process of transpiration. [4]
(b) Describe **three** environmental factors which affect transpiration. [6]
(c) Relate the significance of transpiration to plants and the environment. [2]
[Total: 12]
- 7 (a) Using the auxin theory, explain the effects of light coming from one direction on the growth of shoots. [6]
(b) Describe the term taxic responses with named examples. [6]
[Total: 12]
- 8 (a) Compare and contrast nutrition in a guava plant and *Rhizopus* fungus. [4]
(b) Discuss the importance of saprophytic nutrition to the environment. [4]
(c) Describe the digestion of food in the mouth. [4]
[Total: 12]
- 9 (a) Describe the special dietary needs of a pregnant woman. [6]
(b) Discuss artificial methods of birth control. [6]
[Total: 12]
- 10 (a) With the aid of a labelled diagram, describe the carbon cycle. [6]
(b) Discuss the effects of deforestation on the carbon cycle. [6]
[Total: 12]

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