Centre Number	Candidate Number

Candidate Name _____

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.

FOR EXAMINER'S USE	
Section A	
Section B	
Total	

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.

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.

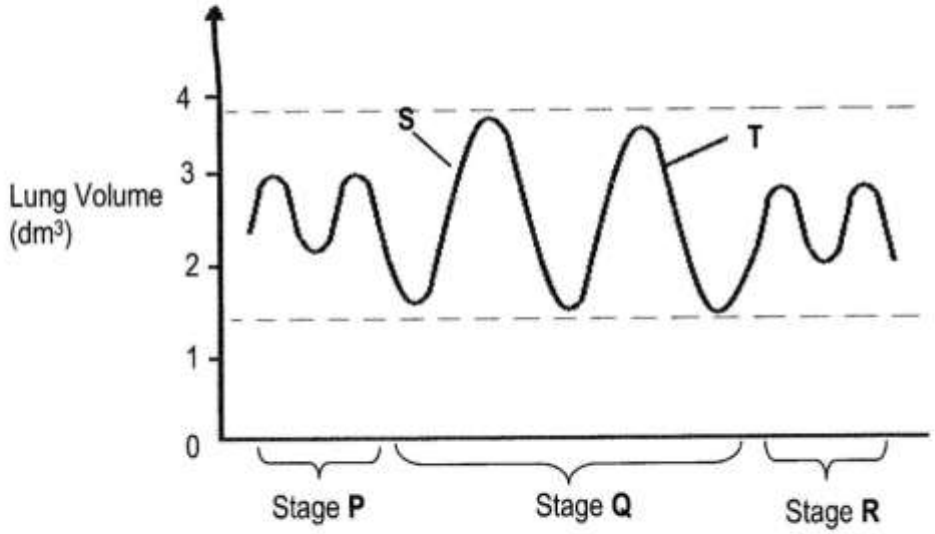


Figure 1.0

(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]

For Examiner's Use

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]

[Turn over

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

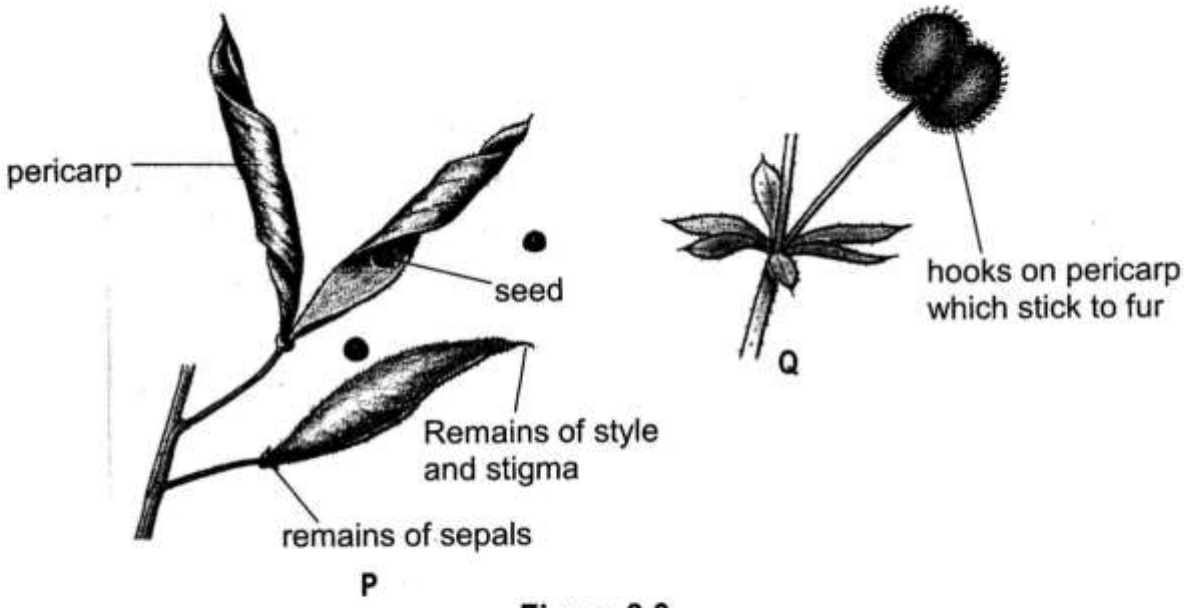


Figure 3.0

(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. .....

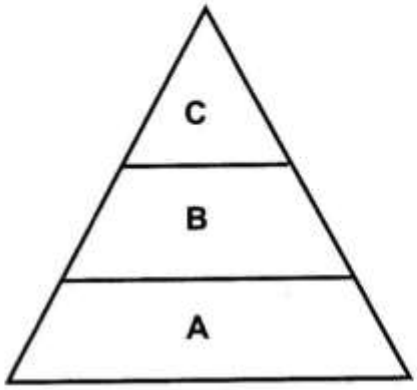
3. .....

[3]

[Total 9]

For Examiner's Use

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]

[Turn over

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

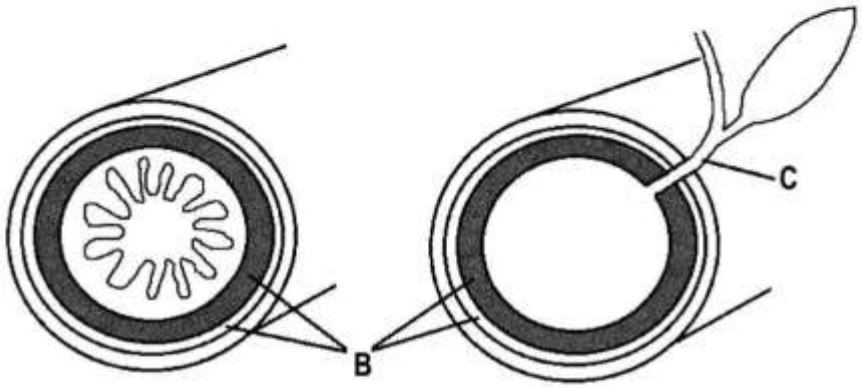


Figure 5.1 **Figure 5.2**

(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]

For Examiner's Use

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]