Centre Number	Candidate Number

Candidate Name: _____

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology 5090/2

PAPER 2

Tuesday 6 OCTOBER 2015

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.

This question paper consists of 7 printed pages.

Section A [44 marks]

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

1 **Figure 1.1** and **Figure 1.2** show the structure of specialised cells in plants.

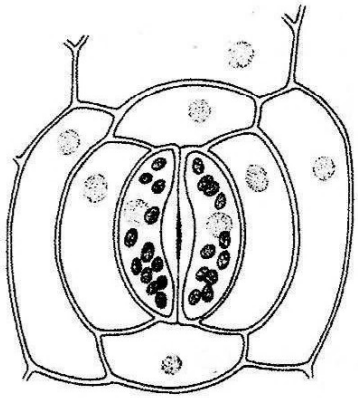

Figure 1.1

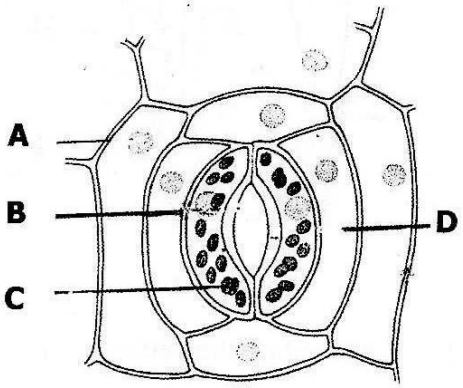

Figure 1.2

(a) **(i)** Identify the cells labelled **A** and **B**.

A .....

B ..... [2]

(ii) Identify the parts labelled **C** and **D**.

C .....

D ..... [2]

(b) **(i)** Which figure shows a closed stoma?

..... [1]

(ii) Explain how the opening of a stoma is brought about.

.....

.....

.....

.....

.....

..... [3]

[Total: 8]

2 **Figure 2.1** shows a section through a human tooth.

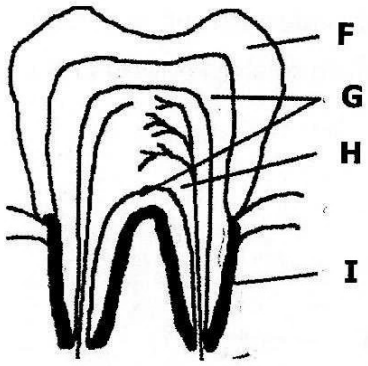

Figure 2.1

(a) **(i)** State the names of the parts labelled **F** and **G**.

F .....

G ..... [2]

(ii) Explain the functions of the parts labelled **H** and **I** in **Figure 2.1**.

H .....

.....

.....

.....

I .....

.....

..... [2]

(b) **(i)** Explain how tooth decay is brought about.

.....

.....

..... [3]

(ii) Suggest **two** ways of preventing tooth decay.

.....

.....

..... [2]

[Total: 9]

3 **Figure 3.1** shows a cassava plant with root tubers.

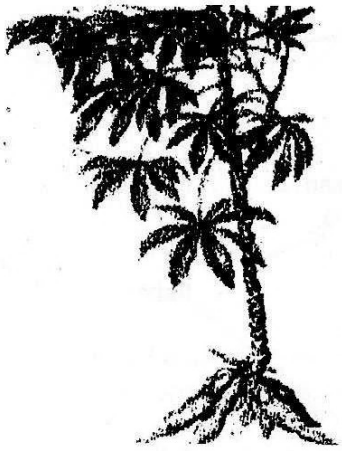

Figure 3.1

(a) **(i)** Which common food nutrient is stored in the root tuber?

..... [1]

(ii) State where this food in the root tubers was manufactured?

..... [1]

(iii) Explain how this food manufactured in **(a) (ii)** above found itself in storage form in the root tubers.

.....

.....

.....

..... [3]

(b) **(i)** State the nutrient in the soil which is necessary for photosynthesis.

..... [1]

(ii) Suggest how this nutrient is taken up from the soil to the leaves in the plant in **Figure 3.1**.

.....

.....

.....

..... [3]

[Total: 9]

4 **Figure 4.1** shows a food web in a given ecosystem.

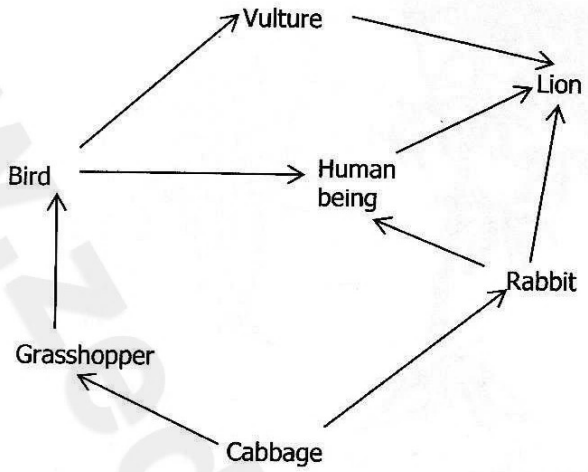

Figure 4.1

(a) **(i)** Identify any primary consumer.

..... [1]

(ii) Construct a food chain using three organisms from **Figure 4.1**.

..... [1]

(iii) Using the food chain in **(a) (ii)** construct a pyramid of energy.

[3]

(b) Distinguish between a food chain and a food web.

.....

.....

.....

.....

..... [2]

(c) Explain why organisms at the end of a food chain have the least amount of energy.

.....

.....

.....

..... [2]

[Total: 9]

5 Pure breeding dwarf garden pea plants were crossed with pure-breading tall garden pea plants. The resulting offsprings were all tall.

(a) **(i)** What is meant by pure breeding?

.....

..... [1]

(ii) Using your own symbols, state the genotypes of the parents.

Pure breeding dwarf garden pea plant = ...

Pure breeding tall garden pea plant = ... [2]

(b) Using a genetic diagram, show the cross between a dwarf parent and one of the offspring.

[5]

(c) Differentiate between homozygous and heterozygous.

.....

.....

..... [1]

[Total: 9]

Section B [36 marks]

Answer any three questions from this section. All answers must be in complete sentences and paragraphs.

6 **(a)** Describe anaerobic respiration in yeast. [4]

(b) Explain the use of yeast in brewing and baking. [5]

(c) Compare and contrast anaerobic respiration in man and yeast. [3]

[Total: 12]

7 **(a)** Describe the following methods of artificial vegetative propagation.

(i) grafting

(ii) budding

[6]

(b) Describe the artificial methods of birth control in humans. [6]

[Total: 12]

8 **(a)** Explain the functions of the following parts in the human ear.

(i) Eustachian tube

(ii) Cochlea [5]

(b) Distinguish between the sensory neurone and the motor neurone. [3]

(c) Describe the pupil reflex action in humans. [4]

[Total: 12]

9 **(a)** Explain the following terms:

(i) Pollination

(ii) Fertilisation [3]

(b) Discuss fruit and seed dispersal. [9]

[Total: 12]

10 **(a)** What is meant by excretion? [2]

(b) Explain how the following substances are excreted from the body.

(i) Carbon dioxide

(ii) Urea [10]

[Total: 12]

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