

Candidate Name \_\_\_\_\_

Centre Number	Candidate Number

# EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

## Biology

5090/2

Paper 2 Theory

Additional Information:  
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.

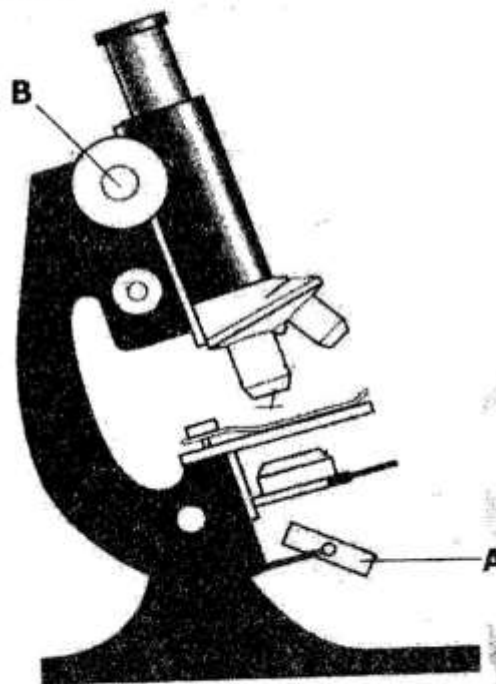
**Cell phones are not allowed in the examination room.**

FOR EXAMINER'S USE	
Section A	
Section B	
Total	

**Section A: Short answer questions [44 marks]**

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

**1** Figure 1.1. shows a light microscope.



**Figure 1.1**

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

**A** .....

**B** ..... [2]

**(ii)** Using letter **X**, label on **figure 1.1**, one part where magnification takes place? [1]

**(b)** Outline the correct procedure to follow in order to use a microscope to view a specimen.

.....  
.....  
.....

..... [3]

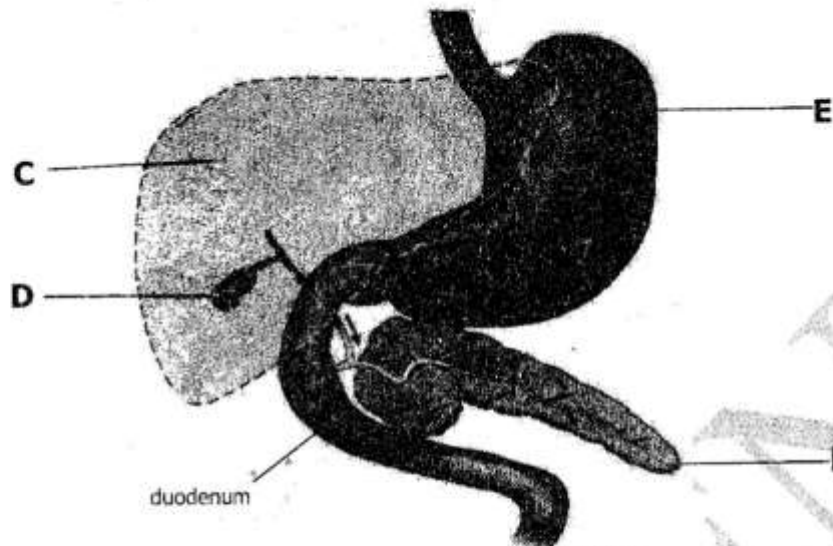
**(c)** Describe how magnification is determined when using a microscope.

.....  
.....

[2]

**Total 8 marks**

2.1. shows part of the alimentary canal, and its associated parts.

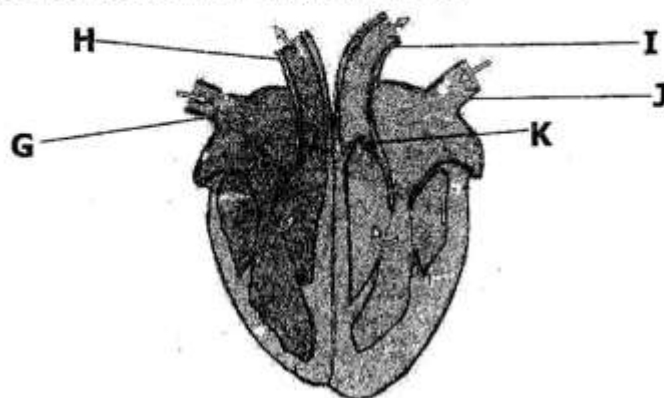


**Figure 2.1**

- (a) (i) In which labelled structure in **Figure 2.1**, are bile salts produced? [1]  
 ..... [1]
- (ii) Explain the role of bile salts in digestion. [2]  
 ..... [2]  
 .....
- (b) (i) In which labelled structure in **Figure 2.1**, are proteins first digested? [1]  
 ..... [1]
- (ii) Explain how protein digestion takes place in the structure identified in (b) (i) above. [3]  
 ..... [3]  
 .....  
 .....
- (c) Name **two** common ailments of structure C.
- 1 ..... [2]  
 2 ..... [2]

**Total 9 marks**

3 **Figure 3.1.** shows a section through the heart.



**Figure 3.1**

(a) (i) From **Figure 3.1**, identify the **two** blood vessels labelled **G** and **I**.

**G** .....

**I** ..... [2]

(ii) Which of the labelled blood vessels carry oxygenated blood back to the heart?

..... [1]

(iii) Identify valve **K** and state its function.

**Valve K:** .....

**Function:** .....

..... [2]

(b) Describe the movement of blood from the time it enters the heart at **J** until it exits at **I**.

.....

.....

..... [2]

(c) Some poor diets can increase the risk of a heart attack.

Suggest **two** other factors apart from diet that could increase the risk of a heart attack.

.....

.....

..... [2]

**Total 9 marks**

4.1. below shows a root system of a leguminous plant.

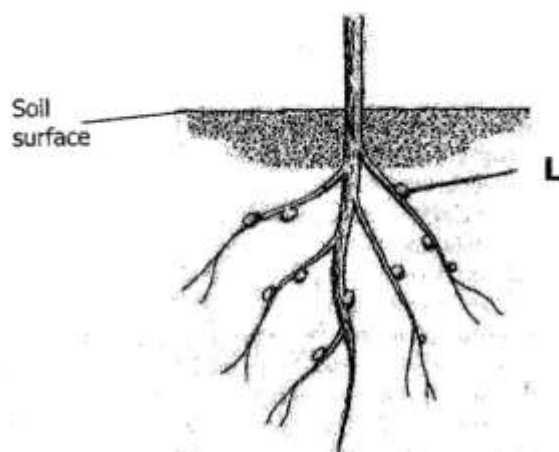


Figure 4.1

- (a) (i) Identify structure **L** in **Figure 4.1** above.

**L** ..... [1]

- (ii) State the micro-organism found in structure **L**.

..... [1]

- (iii) Explain the role of the micro-organism named in (ii) above in the nitrogen cycle.

..... [2]

- (b) Explain the role this plant in **Figure 4.1** plays in the

- (i) Carbon cycle.

..... [3]

- (ii) Water cycle.

..... [2]

**Total 9 marks**

5 Blood group inheritance in humans is controlled by three alleles,  $I^A$ ,  $I^B$  and  $I^O$ .

- (a) Using appropriate genetic symbols, draw a genetic diagram to explain the possible blood groups of children whose parents are both heterozygous for their blood groups, the father being blood group **A** and the mother blood group **B**.

[5]

- (b) Using a named example, explain

- (i) Continuous variation.

**Explanation:** .....

[1]

**Example:** .....

[1]

- (ii) Discontinuous variation.

**Explanation:** .....

[1]

**Example:** .....

[1]

**Total 9 marks**



**Section B: Essay questions [36 marks]**

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

- 6** (a) Describe the following:
- (i) common causes of blindness.
  - (ii) common methods of preventing blindness. [6]
- (b) Describe the effects of abuse of a **named** drug on the nervous system. [6]

**Total 12 marks**

- 7** (a) Describe the processes of fertilization and implantation in humans. [6]
- (b) Describe ways of maintaining a healthy pregnancy and safe childbirth. [6]

**Total 12 marks**

- 8** (a) What role is played by the following structures of the skin in controlling the temperature of the body during over cooling.
- (i) Erector muscle
  - (ii) Blood vessels [6]
- (b) Explain the metabolic functions of the liver. [6]

**Total 12 marks**

- 9** (a) Describe the following deficiency diseases in plants.
- (i) Chlorosis
  - (ii) Leaf flecking [4]
- (b) Discuss the functions of the nutrients phosphorus, nitrogen and magnesium in plant growth. [8]

**Total 12 marks**

- 10** (a) Discuss the importance of the following responses exhibited by plants.
- (i) Phototropism
  - (ii) Geotropism
  - (iii) Hydrotropism [8]
- (b) State and explain taxic responses exhibited by invertebrates. [4]

**Total 12 marks**