

Centre Number	Candidate Number

Candidate Name _____

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology Paper 2 Theory

5090/2

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:

- fasten the Answer Booklet used securely to the question paper,
- 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.

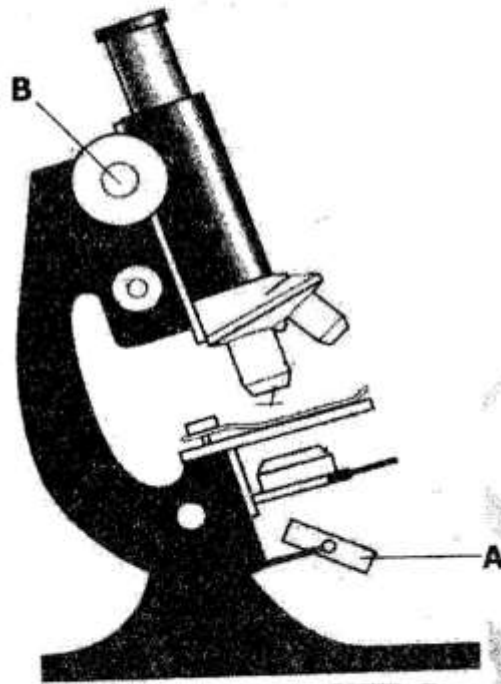


Figure 1.1

(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.

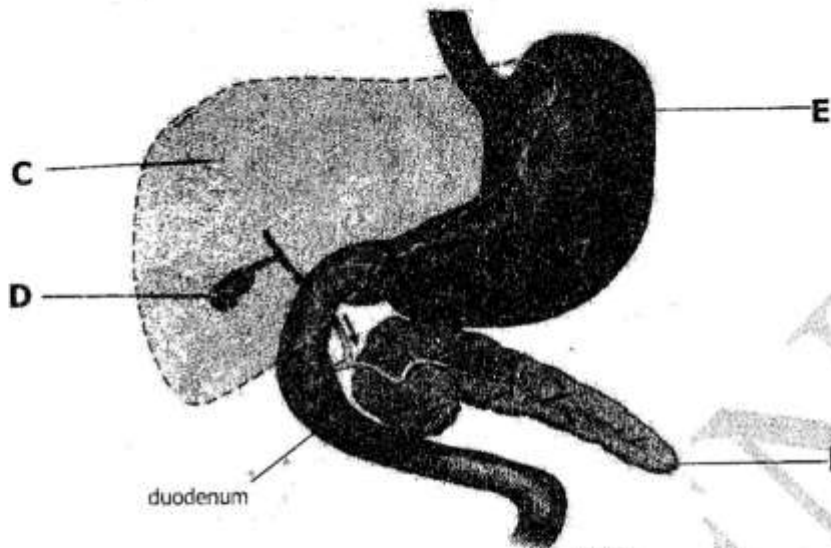


Figure 2.1

(a) (i) In which labelled structure in **Figure 2.1**, are bile salts produced?

..... [1]

(ii) Explain the role of bile salts in digestion.

.....
 [2]

(b) (i) In which labelled structure in **Figure 2.1**, are proteins first digested?

..... [1]

(ii) Explain how protein digestion takes place in the structure identified in (b) (i) above.

.....

 [3]

(c) Name **two** common ailments of structure **C**.

1

2 [2]

Total 9 marks

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

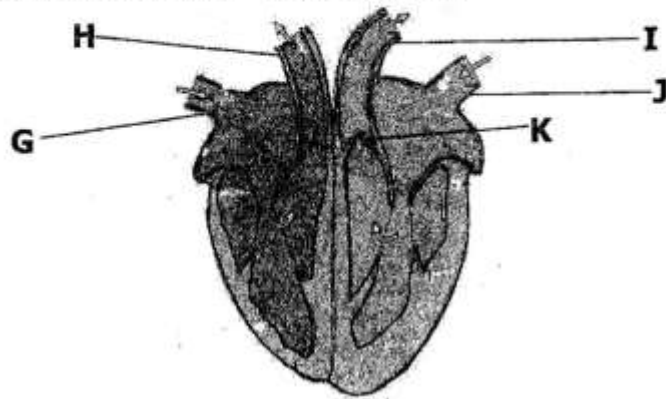


Figure 3.1

- (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.

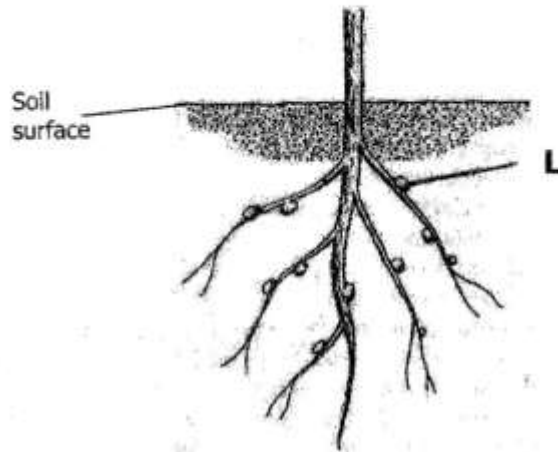


Figure 4.1

- (a) (i) Identify structure **L** in **Figure 4.1** above. [1]
L
- (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 [2]
(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**

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