Centre Number	Candidate Number

Candidate Name _____

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for General Certificate of Education Ordinary Level

Biology 5090/2

Paper 2 Theory

Tuesday **25 JULY 2017**

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 at 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	

This question paper consists of 8 printed pages

Section A Short answer questions [44 marks]

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

1 (a) Complete **Table 1.0** showing parts of a microscope and their functions.

PART	FUNCTION
(i)	Collects and reflects light onto specimen on the stage
Diaphragm	**(ii)**
(iii)	Magnifies the image further
Stage	**(iv)**
(v)	Brings the image into sharp focus especially when the specimen is being viewed at high magnification.

Table 1.0 [5]

(b) State **three** parts of a plant cell which can be easily seen under a light microscope.

(i) .....

(ii) .....

(iii) ..... [3]

[Total: 8 marks]

2 **Figure 2.1** and **2.2** show two endocrine glands labelled **P** and **Q** respectively.

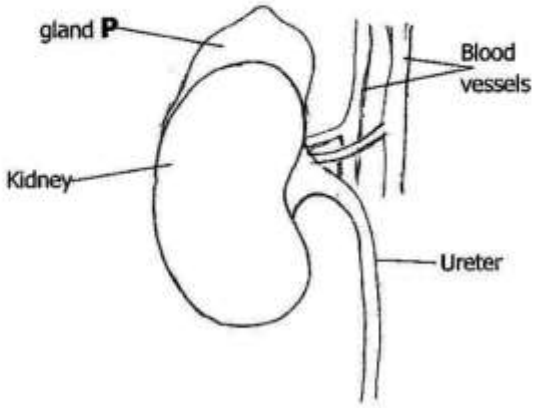

Figure 2.1

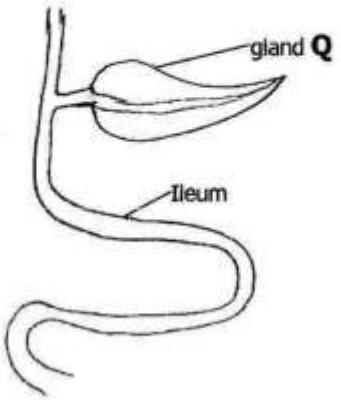

Figure 2.2

(a) **(i)** Identify the endocrine glands **P** and **Q**.

Gland **P** .....

Gland **Q** ..... [2]

(ii) State **one** hormone produced by each gland.

Hormone produced by gland **P** .....

Hormone produced by gland **Q** ..... [2]

(iii) Explain how the hormone produced by gland **P** stated in **(a) (ii)** above plays a role in coordination.

.....

.....

..... [3]

(b) Explain the other role played by gland **Q** apart from producing hormones.

.....

.....

..... [2]

[Total: 9 marks]

3 **Figure 3.0** shows the muscles in a bent limb in a grasshopper.

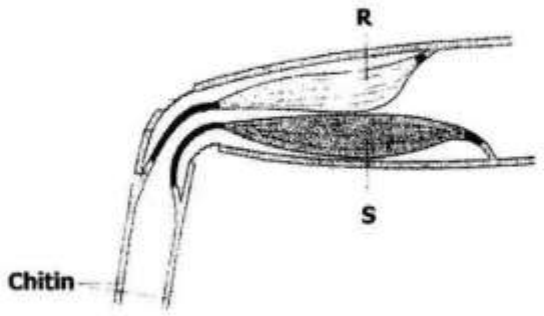

Figure 3.0

(a) Identify muscles **R** and **S**.

Muscle R .....

Muscle S ..... [2]

(b) In order to straighten the limb what happens to muscle **R** and **S**?

Muscle R .....

Muscle S ..... [2]

(c) State the term used to refer to the action of muscle **R** and **S**.

..... [1]

(d) Identify the type of skeleton shown in **figure 3.0**.

..... [1]

(e) State **three** functions of the skeleton in **figure 3.0**.

(i) .....

(ii) .....

(iii) ..... [3]

[Total: 9 marks]

4 **Figure 4.0** shows the process involved in using a dialysis machine by a patient suffering from kidney failure.

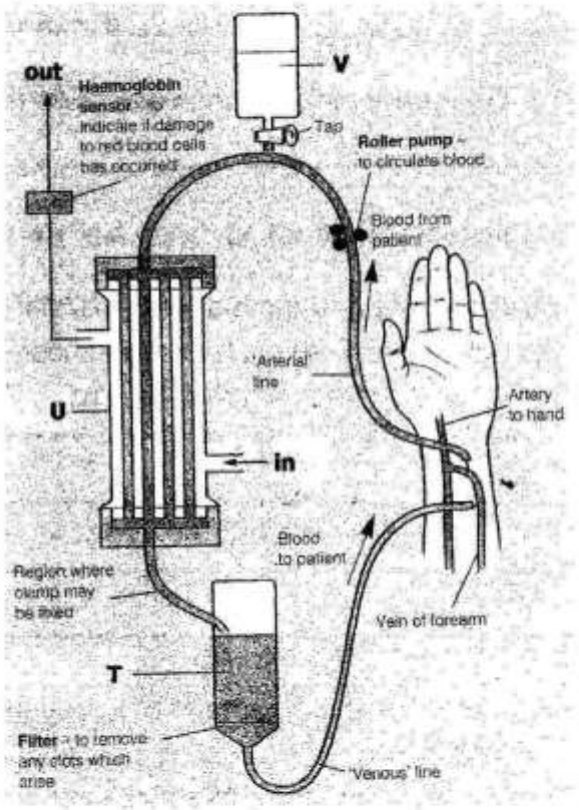

Figure 4.0

(a) **(i)** Which of the labelled parts **V**, **U** and **T** is the dialysis machine?

..... [1]

(ii) Which labelled parts, **V**, **U** and **T** removes gas bubbles to prevent air lock?

..... [1]

(b) Suggest **two** reasons why both tubes, to and from the dialysis machine are connected to the vein and not the artery.

1 .....

.....

2 .....

..... [2]

(c) Explain how important nutrients like glucose, amino acids and salts are prevented from leaving blood in the dialysis machine.

.....

.....

.....

..... [2]

(d) State **two** disadvantages of using a dialysis machine by patients with kidney failure.

(i) .....

.....

(ii) .....

..... [2]

(e) Suggest **one** other method of treatment of kidney failure in a patient.

.....

..... [1]

[Total: 9 marks]

5 A pure breeding black bull was crossed with a pure breeding red cow. All the resulting offspring were black.

(a) Using letter **B** or **b** for alleles;

(i) Which allele was dominant for skin colour?

Allele: ..... [1]

(ii) What was the genotype for the parent black bull?

Genotype: ..... [1]

(b) Using a genetic diagram, show the resulting offspring if the offspring black bull was crossed with the parent red cow. [5]

(c) Suggest what could happen to the pure breeding black bull or red cow to cause them to produce a black and white offspring.

.....

.....

..... [2]

[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 Explain how the internal parts of a leaf are adapted for photosynthesis. [12]

[Total: 12 marks]

7 **(a)** Explain why

(i) Persons with blood group **AB** are referred to as universal recipients. [4]

(ii) A person with blood group **A** cannot donate blood to a person with blood group **B**. [4]

(b) Explain the importance of taking **named** precautions before blood transfusion can be done. [4]

[Total: 12 marks]

8 **(a)** Describe the production of adenosine triphosphate (ATP) during respiration. [3]

(b) Suggest ways in which respiration is important to living things. [3]

(c) Compare and contrast the respiratory surface of humans and fish. [6]

[Total: 12 marks]

9 **(a)** Explain the advantages and disadvantages of vegetative propagation. [5]

(b) Describe the process of fertilization in flowering plants. [7]

[Total: 12 marks]

10 **(a)** Using a pond as an example, describe the features of an ecosystem. [6]

(b) Explain the effect of agriculture on an ecosystem. [6]

[Total: 12 marks]