

Candidate Name _____

Centre Number				Candidate Number									

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	

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]

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- (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.

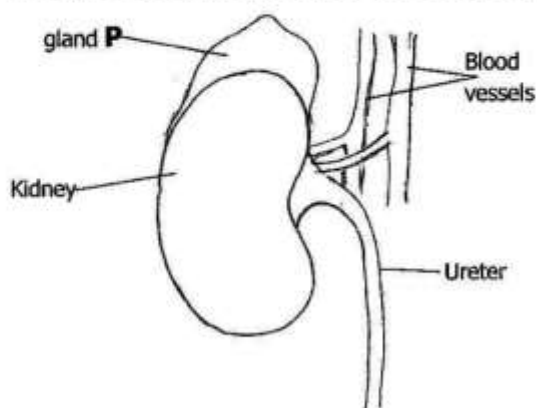


Figure 2.1

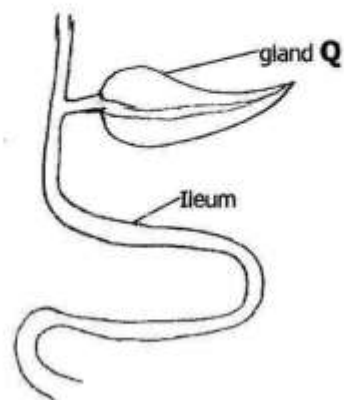


Figure 2.2

- (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.

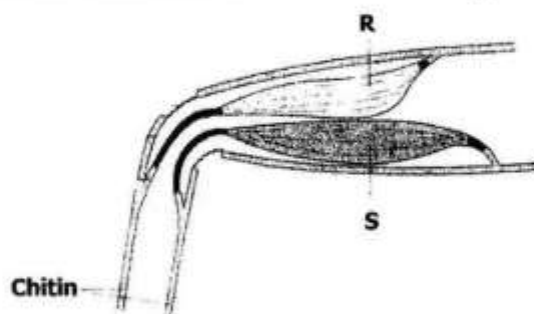


Figure 3.0

- (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.

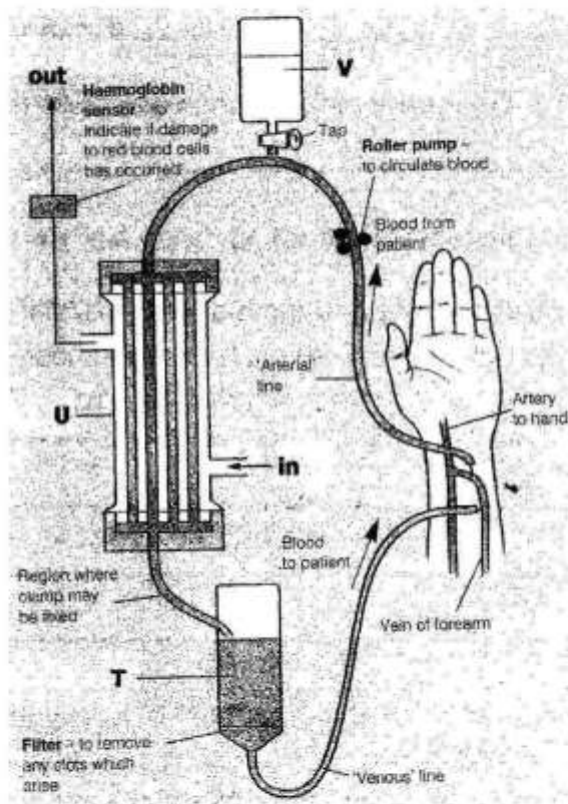


Figure 4.0

- (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]

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- 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]

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(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]

[Turn over]

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]

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