

Centre Number				



EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology

5090/2

Paper 2 Theory

Thursday

11 NOVEMBER 2021

Additional Materials:

Answer Booklet

Time: 1 hour 45 minutes

Marks: 80

Instructions to Candidates

- 1 Write the **centre number** and your **examination number** on **every page** of this question paper and on the separate **Answer Booklet** provided. www.eczpastpapers.com
- 2 There are **ten** questions in this paper.
- 3 **Section A**
 - (i) Answer **all** questions.
 - (ii) Write your answers in the spaces provided in this question paper.
- 4 **Section B**
 - (i) Answer **any three** questions.
 - (ii) Write your answers in the separate Answer Booklet provided.
- 5 At the end of the examination:
 - (i) fasten the Answer Booklet used securely to the question paper,
 - (ii) **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

- 1 The number of marks is given in brackets [] at the end of each question or part question.
- 2 You are advised to spend no longer than one hour on Section A and no longer than 45 minutes on Section B.
- 3 Cell phones are **not allowed** in the examination room.

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Section A Short answer questions [44 marks]

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

1 Figures 1.1 and 1.2 show freshly cut potato chips suspended in solution E and F at the beginning of an experiment and after two hours respectively.

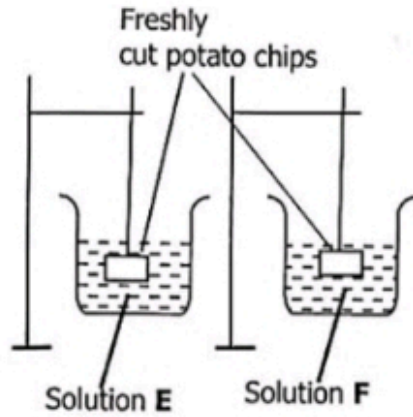


Figure 1.1
(At the beginning)

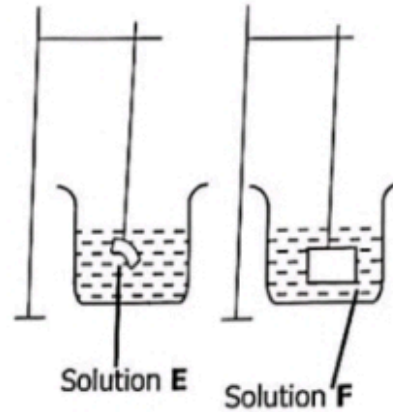


Figure 1.2
(After two hours)

(a) (i) Explain the difference in the appearance of the potato chips in solutions E and F after two hours.

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.....

 [4]

(ii) Based on the appearance of the potato chips in solution E after two hours, what term could be used to describe solution E?

..... [1]

(b) (i) What would be the state of cells in the potato chips in solution F after two hours?

..... [1]

(ii) State the importance of the state of cells in (b)(i) above to plants.

..... [1]

(c) Explain the meaning of the term 'isotonic solution'.

.....
 [2]

[Total: 9]

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2 (a) **Table 2** shows various food tests carried out by a learner.

Nutrients	Test	Observation	Conclusion
Starch	1 _____	Colour change from brown to blue/black	Starch is present
2 _____	Emulsion	White precipitate	3 _____
Protein	Biuret	4 _____	Protein is present

Table 2

(i) Complete the table by filling in the spaces. [4]

(ii) Which nutrient in the table would cause Kwashiorkor if lacking in the human body?

..... www.eczpastpapers.com [1]

(iii) Name a nutrient **not** in the table which helps to prevent constipation.

..... [1]

(b) State **two** deficiency diseases in plants.

1 [1]

2 [1]

[Total: 8]

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3 **Figure 3** shows a longitudinal section through a root tip.

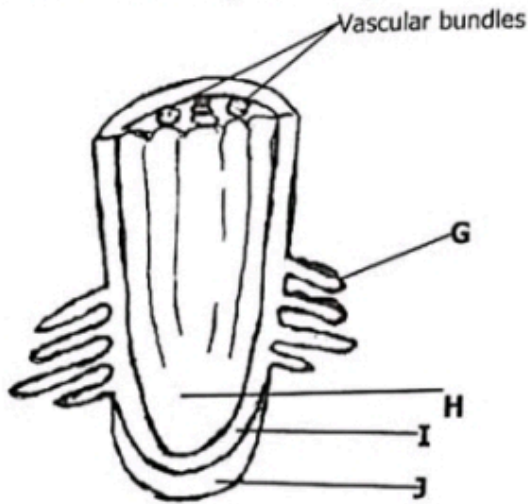


Figure 3

- (a) Identify the parts labelled **G** and **J**.
- G:** [1]
- J:** [1]
- (b) Which labelled part in **Figure 3** is responsible for generating new cells?
 [1]
- (c) Region **H** is responsible for cell differentiation.
- (i) Apart from vascular bundles, state **two** other cell types differentiated by region **H**.
- 1 [1]
- 2 [1]
- (ii) State **two** types of cells found in a vascular bundle.
- 1 [1]
- 2 [1]
- (iii) Which named type of cells in (c) (ii) allows movement of substances upwards and downwards depending on the needs of the plant?
 [1]
- (d) Suggest **one** meristematic structure, not in the diagram, responsible for bringing about secondary growth in dicotyledonous plants.
 [1]

[Total: 9]

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4 Figure 4 shows the structure of a nephron.

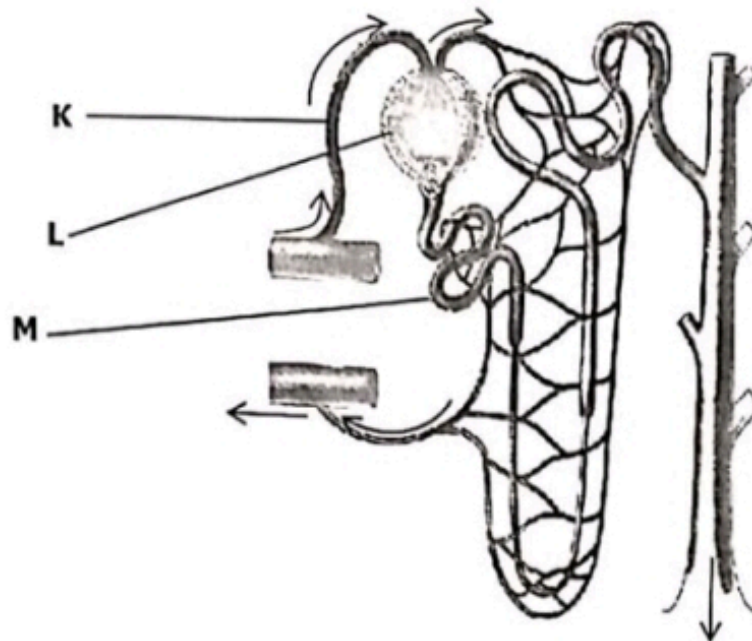


Figure 4

(a) Identify the parts labelled K and L.

K [1]

L [1]

(b) (i) Name **two** substances present in the fluid in K but absent from the fluid in M.

1 [1]

2 [1]

(ii) Give **two** reasons for your answer in (b)(i) above.

1 [1]

2 [1]

(c) (i) State **one** common disorder associated with the kidney.

..... [1]

(ii) Explain how the disorder in (c)(i) can be treated.

..... [2]

[Total: 9]

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5 Figure 5 shows four animal cells at different stages of mitotic division.

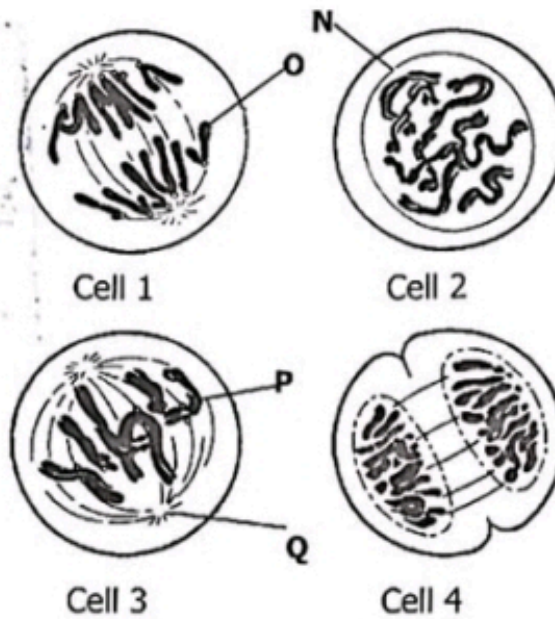


Figure 5

(a) Name the structures labelled **N** and **O**.

N [1]

O [1]

(b) At which stages of mitotic division are cells 1 and 3.

Cell 1: [1]

Cell 3: [1]

(c) A husband and wife were heterozygous for blood group **A** and **B** respectively. With the help of a genetic diagram, show the possible blood groups of their children.

[5]
[Total: 9]

