MARANDA HIGH SCHOOL

Kenya Certificate of Secondary Education

THE MOCK EXAMINATIONS, 2025

231/3 **BIOLOGY** **PAPER 3**

May/June, 2025 **TIME: 2½ Hrs**

Name: ……..…… Admission No: ……

Stream: …….. Signature: ……..... **Tuesday, 3rd June, 2025; 7:00-9:30am**

Instructions

(a) Write your name, admission number, date, stream and signature in the spaces provided above.
(b) All answers must be written in the spaces provided in this question paper.
*(c) This paper consists of **6** printed pages with **3** questions.*
(d) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing
(e) Candidate should answer the questions in English

FOR EXAMINERS'USE ONLY

Question	Maximum Sccore	Candidate's score
1		
2		
3		
Total	40	

1.You are provided with the following apparatus and reagents to carry out an experiment:

- Specimen **P**
- Hydrogen peroxide about 20 cm^3
- Scalpel
- **2M** Hydrochloric acid about 5 cm^3
- **4M** Sodium Chloride about 10 cm^3
- Metallic spatula
- 10 ml measuring cylinder
- **3** Boiling tubes
- Distilled water
- **3**-Means of labelling
- Pestle and mortar
- Means of timing
- 3 Labels

Procedure

(i) Label the boiling tubes **A**, **B**, **C**.
(ii) Measure 5ml of hydrogen peroxide and pour in **A**, do the same to **B** and **C**.
(iii) To **A** add 2ml of dilute hydrochloric acid. To **B** and **C** add 2ml of Sodium Chloride solution.
(iv) Using a scalpel cut the lower part called the root for all the 5 pieces of the specimen **P**.
(v) Measure 8cm of one of the specimen and crush the piece in pestle and motar provided, scoop it with spatula and dip it in **A**; Record your observation after 2min.
(vi) Repeat the same procedure for **B**.
(vii) Crush the remaining **three** pieces of specimen **P** measuring 8cm, scoop it using spatula and dip in **C**

a) Record your observations in the table below: (3marks)

Test tube	Observation
A	
B	
C	

(a) Account for your observations in: (6marks)

(i) Boiling tube A

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(ii) Boiling tube B

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(iii) Boiling tube C

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(b) Giving one reason based on the external feature of the root, state the class from which specimen **P** was obtained. (2 marks)

Class……

Reason……

(c) (i) Name the condition under which the specimen **P** was grown. (1 mark)

……..……

……...……

(ii) Give **one** reason for your answer (1mark)

……..……

……..……

(d) Apart from the type of germination exhibited by **P**, name the other type of germination. (1mark)

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2.You are provided with specimen **J**.

(a) (i) Using observable features only, identify the habitat to which the **J** leaves. (1mark)

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(ii) Give **two** reasons for your answer in (a)(i) above (2marks)

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(b) Stroke the specimen using your 30 cm ruler from:

(i) Head towards the tail. Record your observation (1mark)

……..……

……..…

(ii) Tail towards the head. Record your observation (1mark)

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(iii) What is the significance of your observation in (b)(i) and (ii) above? (1mark)

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(c) Using the scalpel provided, cut and remove the operculum to expose the gills. Remove one complete gill from the specimen and place it the petri-dish containing enough water to cover it. Examine the gills under a hand lens.

(i).Draw and label it. (5 marks)

(ii) Explain **two** adaptations of the gill filament to its function (2marks)

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……..……

(iii) Name one of the paired fins (1mark)

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3.You are provided with a specimen labeled **X** and two solutions $\mathbf{L_1}$ and $\mathbf{L_2}$ .Push a cork borer through **X** to obtain two cylinders. Trim the ends to ensure that each cylinder is 3cm long. Put the two cylinders in $\mathbf{L_1}$. Obtain two other similar cylinders of 3cm long each and put them in liquid $\mathbf{L_2}$.Let the set up stand for 30 minutes.

(a) Tabulate your results in the table below (2marks)

		Initial length (mm)	Final length (mm)	Average length (mm)
Cylinders in L_1	Cylinder 1 2	 30 30	 _____ _____	
Cylinder in L_2	Cylinder 1 2	 30 30	 _____ _____	

(b) State the nature of solution **L_1** and **L_2**. (2marks)

Solution **L_1**……

Solution**L_2**……

(c) Explain the differences in the average lengths of the cylinders between solutions **L_1** and **L_2**.

Solutions **L_1** (2marks)

……...…

……...……

……...……

Solution **L_2** (2 marks)

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(d)(i) Give **two** roles of the process being investigated above in plants (2marks)

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(ii) Explain the role of oxygen in active transport (2marks)

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