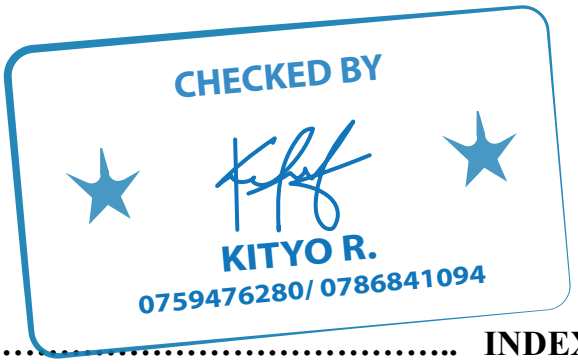
530/3
S.6 Biology
PRACTICAL
3 ¼ Hours



NAME…….. INDEX NO:……

PRE-MOCK III EXAMINATIONS 2023
Biology practical
PAPER 3
TIME: 3HOUR 15 MINUTES

INSTRUCTIONS:
This paper consists of three questions
Attempt all questions.
Answers must be written in the spaces provided only

FOR EXAMINER'S USE ONLY		
Question	**Marks**	**Examiners Signature**
1		
2		
3		
TOTAL		

1. You are provided with two animals labelled C. Obtain one animal from specimen C. Study it and answer the questions that follow.

(a) Observe the eyes of the specimen.

(i) Describe the structure of the eyes. *(02 marks)*

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(ii) State the importance of the position of the eyes to the specimen. *(02 marks)*

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(b) (i) Examine three segments from the proximal end of one antenna using a hand lens.
Draw but **do not** label three segments. *(03 marks)*

(ii) Relate the structure of the antennae to function. *(04 marks)*

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(c) (i) Dissect to expose the region of the specimen between the first abdominal segment and the last abdominal segment by cutting along its left lateral side. Immerse the specimen in water. Carefully displace the gut structures to the left of the specimen. Draw and label the structures visible in this region of your dissection. *(16 marks)*

(ii) By further dissection cut and remove the gut structures that lie anterior to the ileum. Draw and label the structures concerned with water absorption, impulse transmission and any buoyant structures.

(09 marks)

2. You are provided with solutions **A, B, P, Q** and **R.**

(a) (i) Carry out tests in Table 1 on the solutions **A** and **B.** Record your tests and observations in the table.

Table 1 (7 marks)

(ii)

Tests	Observations
Benedicts Test	**A:**
	B:
Biuret Test	**A:**
	B:

Test solution **R** with a litmus papers and state your observations and deductions. (1½ marks)

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(b) Cut out the mid guts from the two specimens labelled **C**. Place the two midguts in a mortar, grind them into a fine paste. Add $3cm^3$ of distilled water, stir and leave it to settle. Decant into a test tube to obtain an extract. Label it extract **C**.

(i) Label **eight** test tubes **(i) – (viii)** and carry out procedures summarized in Table **2.**

Test	Contents
(i)	$1cm^3$ of solution **A** + $1cm^3$ of solution **Q** + $1cm^3$ of solution **R**.
(ii)	$1cm^3$ of solution **A** + $1cm^3$ of solution **Q** + $1cm^3$ of distilled water.
(iii)	$1cm^3$ of solution **B** + $1cm^3$ of solution **Q** + $1cm^3$ of solution **R**.
(iv)	$1cm^3$ of solution **B** + $1cm^3$ of solution **Q** + $1cm^3$ of distilled water.
(v)	$1cm^3$ of solution **A** + $1cm^3$ of solution **P**.
(vi)	$1cm^3$ of solution **B** + $1cm^3$ of solution **P**.
(vii)	$1cm^3$ of solution **A** + $1cm^3$ of solution **C**.
(viii)	$1cm^3$ of solution **B** + $1cm^3$ of solution **C**.

(ii) Observe and describe the appearance of the mixture in each test tube **(i) – (iv)** before incubation. Fill in table **3** and complete the table after incubation.

Table 3 (12 marks)

Test tube	Observation before incubation	Observation after incubation	Deductions
(i)			
(ii)			
(iii)			
(iv)			

(c) (i) Incubate all the eight test tubes **(i) – (viii)** between **35-40°C** for 20 minutes.
After 20 minutes of incubation, remove the test tubes and allow the contents of the contents of test tubes **(i) – (iv)** to settle for 10 minutes.
Record your observations on the appearance of the mixture in each test tubes **(v) – (viii)** in Table **3** and complete the table.

(iii) Carry out Benedicts test on the respective contents of the incubated test tubes **(v) – (viii).** Record your observations and deductions in Table **4**

Table **4** (7 marks)

Test tube	Observation	Deduction
(v)		
(vi)		
(vii)		
(viii)		

(d) From your results, Explain the effect of the following solutions on solution **A.** (3 marks)

(i) Solution **Q**

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(ii) Solution **P**

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(iii) Extract **C**

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(e) From your results, Explain the effect of the following solutions on solution **B.** (3 marks)

(i) Solution **Q**

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(ii) Solution **P**

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(iv) Extract **C**

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(f) From the results of the experiment, suggest with reasons, the nature of solutions **A** and **B.** (4 marks)

(i) Solution **A**

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(i) Solution **B**

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3. You are provided with specimens **X** and **Y**.

(a) Describe the vegetative structure of specimen **X** and **Y**.

(i) **X** *(04 marks)*

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(ii) **Y** *(06 marks)*

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(b) (i) Relate the structure described above to the survival of the specimen in its habitat.

Specimen **X** *(04 marks)*

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Specimen **Y** *(04 marks)*

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(c) Mount a leaf of specimen **X** under high power of microscope.

(i) Draw and label three adjacent cells. *(06 marks)*

(ii) Basing on your observation under high power of microscope, with a reason suggest the habitat of specimen X

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S.6 PRE-MOCK III BIOLOGY PRACTICAL P530/3 INSTRUCTIONS

Each candidate should be provided with the following:

2 freshly killed mature cockroaches, labelled C.

Whole Moss on a petri dish labelled X

Whole fern labelled Y.

10 cm^3 of 1% starch solution (boiled and cooled), labelled solution A.

10 cm3 of a mixture of sucrose + egg albumen, labelled solution B. (Solution B is prepared by dissolving 20 g of sucrose + 10 cm^3 of egg albumen in 1litre of water. Warm the mixture to make a milky suspension).

5 cm^3 of 1% yeast suspension, labelled solution P.

5 cm^3 of 1% pepsin enzyme solution, labelled solution Q.

5 cm^3 of 0.2 M hydrochloric acid, labelled solution R.

12 test tubes.

A mortar and a pestle.

A thermometer.

1 large beaker and 1 small beaker.

10 ml measuring cylinder.

A stop clock.

A microscope, 2 slides and cover slips.

Labels.

A razor blade.

Blue and red litmus papers.

Access to:

Reagents for carrying out food tests.
Hot water.
Source of heat.
Distilled water.