NAKAWA UNION VISION SECONDARY SCHOOL

END OF TERM III EXAMINATIONS 2023

S.5 BIOLOGY PRACTICAL

TIME: 3 HOURS 15 MINUTES

INSTRUCTIONS: *ATTEMPT ALL QUESTIONS.*

Question 1:
You are provided with a freshly killed animal labelled specimen **G**.

a) Pin the specimen with the ventral side uppermost. Dissect and remove the skin, taking note of how it is attached to the underlying body wall.

i) Describe the attachment of the skin to the body wall. (3 marks)

……
……

ii) Suggest the significance of the way the skin is attached to the body wall as described in a) i) above. (3 marks)

……
……

b) Observe the main blood circulation on the skin.

i) Describe the pattern of blood circulation on the skin. (4 marks)

……
……
……

ii) Give the significance of the pattern of blood circulation described in (b) (i) (3 marks)

……
……

c) Dissect the specimen further to display;

i) Blood vessels carrying blood from organs located on the left half of the abdominal cavity back to the heart.

ii) Structures used for elimination of unwanted materials from the body. With the heart displaced anteriorly, draw and label the blood vessels and structures displayed in (c) (i) and (ii) on one diagram. (27 marks)

Question 2.

You are provided with specimen **P.** You are required to carry out tests on the specimen using the procedure provided, then answer the questions that follow.

- Label five test tubes as A, B, C, D and E
- Peel specimen P, choose five large locular segments and separate them individually
- Squeeze the juice from segment into a test tube labeled A
- Place the remaining four segments in a beaker and when it starts boiling, start a stop clock.
- Remove the segments from the boiling water one at a time, after a minute, 4 minutes, 6 minutes and 10 minutes and place them in a petri dish. (take care to note which segment has been boiled for how long)
- After the segments have cooled, squeeze the juice from each of them into labeled test tubes as indicated in a table below.

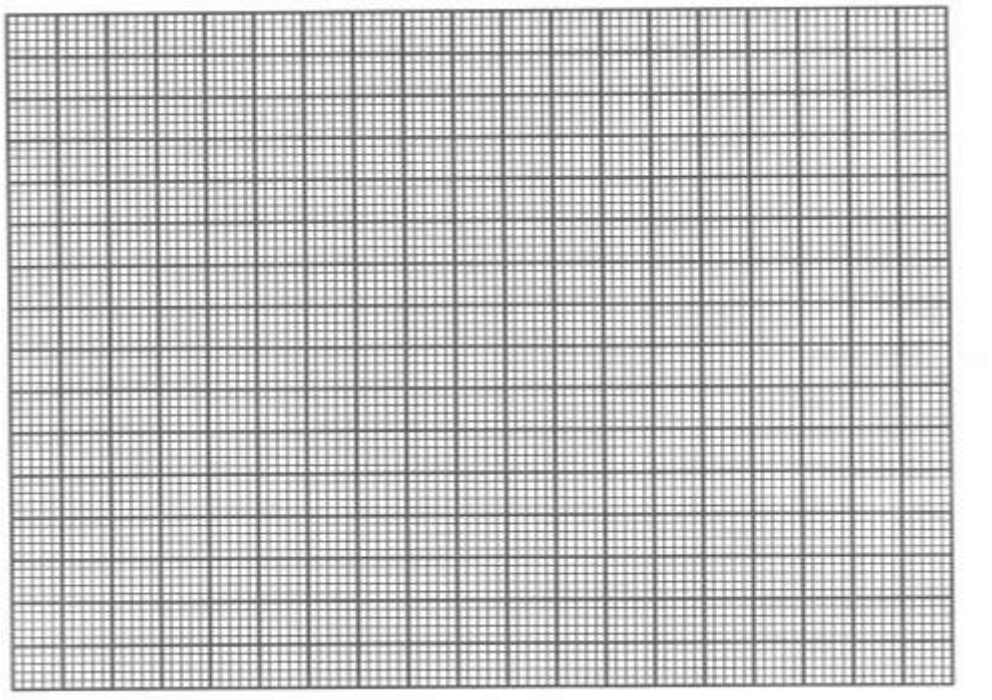
Duration the segment has been boiled (minutes)	Test tube into which juice in squeezed
1	B
4	C
6	D
10	E

a) Carryout the following tests using the juices prepared.

To 2cm ^{3} of DCPIP solution in the test tube add the juice from the test tube A, drop by drop using a dropper and record the number of drops required to decolourise the DCPIP solution. Repeat the procedure with solutions B, C, D, and E and record your results in the table below. (5 marks)

Test tube containing juice	**Duration the segment was boiled (minutes)**	**Number of drops of juice needed to decolourise DCPIP**
A	0	
B	1	
C	4	
D	6	
E	10	

b) Represent your result on a graph, in the space below. (12 marks)



C (i) State the conclusion drawn from these results. (2 minute)

……

ii) State two explanations for your results. (6 marks)

……
……
……
……

iii) Suggest how one of the suggestions in (c) (ii) can be verified. (3 marks)

……
……

d) What is the significance of your results from the tests. (2 mark)

……

Question 3

You are provided with specimens B and C which are whole plants.

a) i) Examine specimen B and suggest its habitat. (1 mark)

ii) Give five adaptations of the specimen to the habitat stated in (a) (i). (10 marks)

……
……
……
……
……
……
……

b) Examine both specimen B and C and give two differences between their leaves, stem and roots. (6 marks)

	B	C
Leaves		
Stem		

Roots		

c) i) Using a razor blade, cut a small piece of the leaf from each of the specimen B and C, mount each separetly on a microscope slide in a drop of water and observe under a low power of a microscope. Record your observations. (2 marks)

Specimen B

……

Specimen C

……

ii) Peel off the epidermis on both sides of each specimen, mount and view them under low power of microscope. Describe how each specimen is adapted for its habitat. (8 marks)

Specimen B

……

……

……

Specimen C

……

……

……

d) Cut very thin transverse sections through the stems of specimens B and C and observe them under low power of a microscope. Draw the tissue plan of both sections. Do not label. (4 marks)

END

S5 EOT 3 BIO PRAC. CONFIDENTIAL 2023

NO.1

Specimen **G**. freshly killed toad

NO.2:

Specimen **P**- large ripe orange (each student to be given one orange).

NO.3.

*Specimen **B**- Nymphaea sp. (water lily)*

*Specimen **C**- Cyperus rotundus (nut grass)*