

Name

MID OF TERM II BIOLOGY EXAMINATION

Senior five.

P530/3.

Biology.

Practical.

July 2019.

2 ½ hours.

Instructions.

Answer all the questions in the spaces provided.

Use well sharpened pencil for drawings.

Untidy work shall not be marked.

For teacher's use only.

Question.	Marks.
1	
2	
Total	

1. A freshly killed specimen W is provided.

(a) (i) Classify it into the following taxa with **two** reasons each.

Phylum

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Reasons

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Order

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Reasons

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(b) Using a magnifying lens, examine the structures found on the head region of specimen W.

- (i) Describe **features** on its head region used to classify the specimen into its class. (03 marks)

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- ii) Carefully severe off the head of the specimen from its body. Draw and label the head from the anterior view. (5marks)

- iii) Carefully cut the left compound eye together with the left antenna. Mount it on a microscope. Using low power magnification, observe them. Make an accurate drawing of the compound eye and the antenna from the base. Do not label. (4marks)

- iv) Describe the units of compound eye as they appear under low power objective lens of a microscope. *(3 marks)*

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- v) Give the suitability of the units of the compound eye to its function. *(3marks)*

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(d) Dissect the specimen by cutting along the left edge of the cuticles to display the structures on the ventral cuticle. Displace the alimentary canal to the left side. Draw and label. *(15 marks)*

2. Solutions **P₁**, **P₂** and **P₃** are extracts of different plant organs. Carry out the following tests in tables 1, 2, 3 and 4 to determine the nutrients of each extract. Record your tests, observations and deductions in the tables below.

(i) Benedict's test

Table 1

Test	Observation	Deduction.
	P ₁	
	P ₂	
	P ₃	

(ii) Biuret test.

Table 2

Test	Observation	Deduction.
	P ₁	
	P ₂	

	P ₃	

(iii) Iodine test.

Table 3.

Test	Observation	Deduction.
	P ₁	
	P ₂	
	P ₃	

(iv) DCPIP test

Table 4.

Test	Observation	Deduction.
	P ₁	

	P₂	
	P₃	

(b) From your results suggest the plant part(s) from which the extracts were obtained.

Explain your answer.

P1.....

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P2.....

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P3.....

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(c) Remove the alimentary canal, and cut out the foregut and midgut. Put both the mid gut and foregut in a mortar, grind into a fine paste and add 30 cm³ of water. Stir, leave to settle and decant to obtain **extract C**. Divide the extract equally into three test tubes labeled as **1, 2 and 3**.

To test tube **1**, add 3cm³ of solution **P₁**, to test tube **2**, and 3cm³ of solution **P₂** and to test tube **3**, add 3cm³ of solution **P₃**. Incubate the test tubes at 35 – 40°C for 20 minutes. After incubation, carry out the tests in Table 5 below on the contents of each test tube to establish the effect of **extract C** on solutions **P₁**, **P₂**, and **P₃**.

(i) Record your observations in the table.

Table 5

Test tube	Observations after 20 minutes		
	Benedicts test	Iodine test	DCPIP
1 Extract C + 3 cm³ P1			
2 Extract C + 3 cm³ P2			
3. Extract C + 3cm³ P3			

(ii) Explain your results of the tests with contents of

Test tube 1.

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Test tube 2.

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Test tube 3.

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(iii) From your results in (c) (i), state **two** properties of the active substances in extract C.

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