Name:……..... Signature:……..……

P530/3
BIOLOGY
(Practical)
Paper 3
Nov,2023
$2\frac{1}{2}$ hours

WAMATOVU MUSLIM SEED SECONDARY SCHOOL

END OF TERM THREE EXAMINATIONS, 2023

Uganda Advanced Certificate of Education

BIOLOGY

(PRACTICAL)

PAPER 3

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

*Answer **all** questions in this paper.*

*Write the answers in the **spaces** provided. **No** additional sheets of paper should be inserted in this booklet.*

*You are **not** allowed to start working with the apparatus within the first **15 minutes**. You are advised to use this time to **read** through the paper and ensure that you have all the apparatus, chemicals and specimens you require.*

For Examiners' Use Only		
Question	**Marks**	**Examiner's Signature & No.**
1		
2		
Total		

60 minutes

1. You are provided with specimen **M**, which is freshly killed. Examine the external features of the specimen using a hand lens where necessary.

(a) Describe the structure of the following parts;

(i) Exoskeleton on the abdomen. ***(03 marks)***

……

……

……

……

(ii) Tarsus. ***(03 marks)***

……

……

……

……

(iii) Antennae. ***(03 marks)***

……

……

……

……

(b) Give two benefits each part in (a) derives from its structures as described above.

(i) Exoskeleton on the abdomen. ***(02 marks)***

……

……

……

……

(ii) Tarsus ***(02 marks)***

……

……

……

……

(iii) Antennae ***(02 marks)***

……

……

……

……

(c) Pin the specimen with the dorsal side upper most. Dissect along one side of the abdomen to display the internal structures. Clear off any unnecessary tissue taking care not to displace any abdominal.

(i) Draw the ventral cuticle and visceral internal parts of the digestive system at this stage of dissection. ***(10 marks)***

(ii) Proceed to dissect and expose the complete alimentary canal and displace it to the left of the specimen to display the internal structures.

Draw and label the structures which are visible in your dissection. ***(15 marks)***

75 minutes

2. You are provided with specimen **F** and **G** and solution **A**, **B** and **H**.

Using a cork borer provided, obtain eight cylinders of uniform length of 3cm from each of the specimens F and G respectively.

(a) (i) Label four test tubes A1, A2, B1 and B2 respectively.

(ii) To each of the test tube A1 and A2, add 6 cm^3 of solution A; add 6 cm^3 of solution B to each of the test tubes B1 and B2.

(iii) Add a cylinder in each of the test tubes A1, A2, B1 and B2 and wait for a period of 30 minutes. ***(You may meanwhile continue with the other work).***

(iv) After 30 minutes remove the cylinders from the solution and measure the final length of each and record in table **1** below. ***(6 marks)***

Table 1

Test tube	Final length (cm)	Change in length (cm)
A1		
A2		
B1		
B2		

Grind two cylinders of specimen **F** in a mortar into a paste then add 10 cm^3 of distilled water, stir, leave to settle and decant. Label it solution **F**. Repeat the above procedure using specimen **G.**

(i) Label two test tubes **F** and **G** respectively and add contents as sown in table **2.** Record your observations and deductions in table 2 below. ***(04 marks)***

Table 2

Test tubes	Content	Observations	Deductions
F	2 cm^3 of **H** + 2 cm^3 of **F**		
G	2 cm^3 of **H** + 2 cm^3 of **G**		

(ii) Carry out the following tests to determine the relative abundance of starch reducing sugars and proteins in extracts **F** and **G** prepared in (b) above. Record your tests, observations and deductions for each extract in table **3.** ***(15 marks)***

Table 3

Test	**Extract**	**Observations**	**Deductions**
Starch	**F**		
	G		
Reducing sugars	**F**		
	G		
Proteins	**F**		
	G		

(c) Explain the differences in your results in;

(i) Table 1 ***(05 marks)***

……

……

……

……

……

……

……

(ii) Table 2 ***(02 marks)***

……

……

……

……

……

……

(iii) Table 3 ***(03 marks)***

……

……

……

……

……

……

END