

**ITETANI GIRLS' HIGH SCHOOL**  
**P.O. BOX 2220 – 90100**  
**MACHAKOS**

**TERM ONE, 2018**  
**FORM FOUR**  
**BIOLOGY 231/3**

**CODE: 1002**

*Answer all the questions in the spaces provided*

1. You are provided with Solution P  
i) Using the reagents provided, conduct a food test (9 Marks)

<b>FOOD</b>	<b>PROCEDURE</b>	<b>OBSERVATION</b>	<b>CONCLUSION</b>
Reducing sugars			
Starch			
Non-reducing sugars			

**NB: SAVE THE REMAINING SOLUTION P FOR QUESTION (ii)**

- a) What is the possible identity of Solution P (1 Mark)  
.....
- b) Is Solution P a monosaccharide, disaccharide or polysaccharide? (1 Mark)  
.....
- c) Name one plant whose stem is rich in Solution P (1 Mark)  
.....

ii) You are provided with Solution Q. Use it to perform the following tests on Solution P:

- Measure 2ml of Solution P and pour it into a test tube. Label the test tube A
- Add 4 drops of Solution Q and warm the test tube in a water bath for 3 minutes.

a) Test the contents of test tube A for reducing sugars. Record your observations below. (3 Marks)

.....

.....

.....

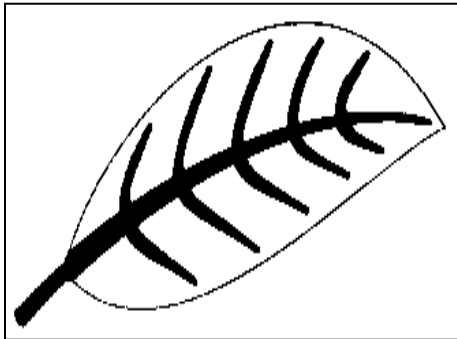
b) What is the identity of Solution Q? (1 Mark)

.....

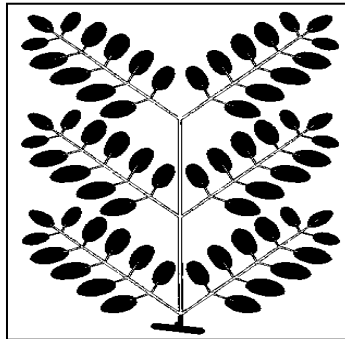
c) State one organ in the human body where Solution Q is produced. (1 Mark)

.....

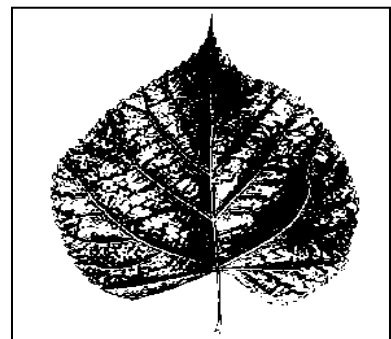
2. Study the leaves below and use them to answer the questions that follow:



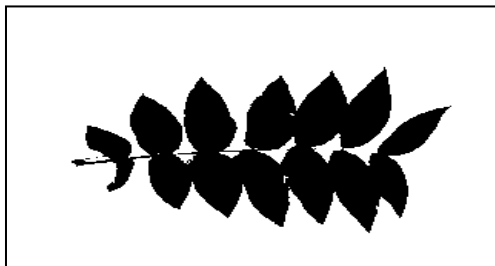
Leaf A



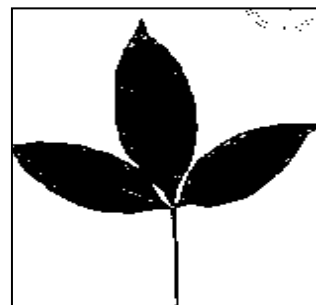
Leaf B



Leaf C



Leaf D



Leaf E

a) Fill in the blank spaces in the dichotomous key below: (4 Marks)

1 a) Leaf is simple..... \_\_\_\_\_

b) Leaf is compound..... Go to 3

2 a) Leaf margin is serrated..... \_\_\_\_\_

b) Leaf margin is not serrated..... Leaf A

3 a) Leaf with three leaflets..... Leaf E

b) Leaf with more than three leaflets..... Go to 4

4 a) Leaf pinnate..... \_\_\_\_\_

b) Leaf bipinnate..... \_\_\_\_\_

b) Fill in the identification table below to identify each leaf. (5 Marks)

LEAF	STEPS	IDENTITY
A		Mango tree
B		Jacaranda tree
C		<i>Lantana camara</i>
D		Nandi flame
E		Cow peas

c) Identify one mistake in the dichotomous key provided and suggest its possible correction. (2 Marks)

.....  
.....  
.....

d) Classify the Mango tree up to class level. (2 Marks)

**Kingdom-** .....

**Division -** .....

**Sub-division-** .....

**Class-** .....

3. You are provided with Solution T. Divide the solution in to three portions measuring 1ml and use them to perform the tests below:

i) Measure about 0.5ml of 1% DCPIP solution and pour it into a clean test tube. Add first portion solution T dropwise and record your observation and conclusion below: (2 Marks)

OBSERVATION	CONCLUSION

ii) To the second portion, add 2ml of sodium hydrogen carbonate and repeat the procedure in i) above using the second portion of Solution T. Record your observations below: (2 Marks)

OBSERVATION	CONCLUSION

iii) To the second portion, add 2ml of dilute hydrochloric acid and repeat the procedure in i) above using the second portion of Solution T. Record your observations below: (2 Marks)

OBSERVATION	CONCLUSION

iv) State any two symptoms of the deficiency disease caused by lack of solution T in the human body. (2 Marks)

.....  
.....

v) Drawing your argument from your conclusion in ii) and iii) above, explain why absorption of Solution T occurs in the stomach in human beings.

(2 Marks)

.....

.....

.....

.....

ITETANI GIRLS' HIGH SCHOOL  
P.O. BOX 2220 – 90100  
MACHAKOS

TERM ONE, 2018  
FORM FOUR  
BIOLOGY 231/3

CODE: 1002

CONFIDENTIAL

EACH STUDENT WILL REQUIRE:

1. 7 test tubes
2. 1 boiling tube
3. 3 measuring cylinders
4. Source of heat
5. 8 ml of Solution P
6. Solution Q
7. Solution T
8. Benedict's solution supplied with a dropper
9. Iodine solution supplied with a dropper
10. Dilute hydrochloric acid supplied with a dropper
11. Sodium hydrogen carbonate supplied with a dropper
12. DCPIP solution supplied with a dropper

SOLUTIONS:

1. Solution P – Sucrose
2. Solution Q – Enzyme Sucrase
3. Solution T – Dilute Ascorbic acid/Vitamin C