

# NYAMIRA SOUTH DISTRICT JOINT EVALUATION TEST 2014.

**BIOLOGY 23 1/3  
PAPER 3  
JULY/AUGUST 2014**

*This document must not be seen by the candidates whatsoever*

## CONFIDENTIAL INSTRUCTION TO SCHOOLS

*Each candidate will require the following:*

- 10 ml substance L in a test tube
- Hand lens
- White tile
- Glass slide
- Blotting paper
- A pair of forceps
- 4 test tubes
- Droppers
- Distilled water in a wash bottle
- Test tube rack
- Test tube holder
- Kale leaf labelled specimen **K**
- Scalpel / Razor blade

**Access to:**

- Water bath
- Means of heating
- Methylene blue
- Reagents
  - o Iodine labelled M
  - o Benedict's solution labelled N
  - o 1% copper sulphate labelled R
  - o 10% sodium hydroxide labelled S
  - o DCPIP labelled Q

L- is a mixture of dehusked groundnut powder and Ascorbic acid suspension

Name..... Index No:.....

231/3  
BIOLOGY  
PAPER 3  
(THEORY)  
JULY/AUGUST 2014  
TIME: 2 HOURS

Candidate's Signature .....  
Date: .....

**NYAMIRA SUB-COUNTY JOINT EVALUATION EXAM**  
*Kenya Certificate of Secondary Education (K.C.S.E.)*

231/3  
Biology  
Paper 3  
2 ½ Hours

**INSTRUCTIONS TO CANDIDATES**

- Write your **name** and **index number** in the spaces provided above
- **Sign** and write the **date** of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.

**For Examiners Use Only**

Question	Maximum score	Candidate's score
1	17	
2	12	
3	11	
Total	40	

*This paper consists of 4 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.*

1. You are provide with specimen K. make thin cross sections of the leaf stalk. Place the sections on a glass slide. Using a dropper, add a drop of methylene blue to the sections. After 5 minutes, use a blotting paper to dry the sections. Examine one using a hand lens  
 (a) Make a well labeled drawing of the section (6mks)

- (b) In the table below, state the functions of the parts labeled in (a) above (6mks)

Part labeled	Function

- (c) Why were the following procedures done?  
 (i) Making thin sections (1mk)

.....

- (ii) Adding a drop of methylene blue to the sections

.....

- (d) Examine the specimen with aid of a hand lens and state the class with a reason  
 Class: (1mk)

.....

- Reason (1mk)

.....

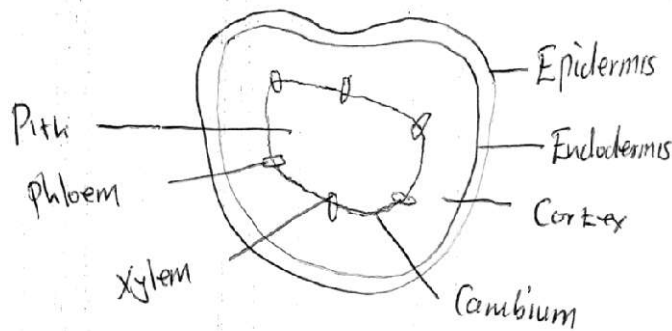
2. You are provided with specimen L, which is a FOOD substance, and the following reagents: M(Iodine solution); N(Benedicts solution); Q(DCPIP) R(1% copper sulphate) and S(10% Sodium hydroxide) carry out tests to determine the food substances in specimen L. record your results in the table below

Food substance being tested for	procedure	Observations	Conclusion
Reducing sugar			
Starch			

Proteins			
Ascorbic acid			

**NYAMIRA SUB-COUNTY JOINT EVALUATION EXAMS  
BIOLOGY 231/3  
MARKING SCHEME  
JULY/AUGUST 2014**

1(a)



D-2mks  
L-3 mks  
Mg=1mk

(b)

Part	Function
Epidermis	Protect inner parts from mechanical damage;
Endodermis	
Cortex	Mechanical support
Xylem	Transport of water and mineral salts
Phloem	Translocation of food substances
Pith	Water storage;

(6x1=6mks)

(c)(i) Absorb stain quickly/light pass through;

(1x1=1mk)

(ii) Make features clearer and distinguishable;

(1x1=1mk)

(d)(i) Dicotyledonae

(1x1=1mk)

(ii) Vascular bundles arranged in ring pattern

(1x1=1mk)

Pith present;

2.

Food substance being tested for	Procedure	Observation	Conclusion
Reducing sugar	To 2cm <sup>3</sup> of specimen L/food substance in a test tube, add equal amount of Benedicts solution; Heat the mixture;	Colour of Benedicts solution persist/remain	Reducing sugar absent;
Starch	To 2cm <sup>3</sup> of specimen L/food substance in a test tube, add 3 drops of iodine;	Blue-black colour formed	Starch present;
Protein	To 2cm <sup>3</sup> of specimen L in a test tube, add equal amount of 10% sodium hydroxide; Add few drops of 1% copper sulphate	Purple colour formed	Proteins present
Ascorbic acid	To 2cm <sup>3</sup> of DCIP in a test tube add specimen L/food substance drop by drop	DCIP decolorized	Ascorbic acid present;

T-13mks

3. (a) (i) Complete metamorphosis;

(1x1=1mk)

(ii) Has all 4 developmental stages; presence of larvae stage and pupa

(1x1=1mk)

(b)-Larva exploits different ecological niche to reduce food competition

Pupa avoids adverse environmental conditions

(2x1=2mks)

(c)(i) D (1x1=1mk)

(ii) G (1x1=1mk)

(d) G → E → D → F

(1x1=1mk)

(e) Juvenile hormone; formation of larval cuticle;

Ecodyson; control moulting/laying of adult cuticle;

(4mks)