

# RACHUONYO SOUTH SUB-COUNTY JOINT EVALUATION EXAMS

231/3  
BIOLOGY  
PAPER 3  
PRACTICALS  
JULY/AUGUST 2014

## **CONFIDENTIAL INSTRUCTIONS TO SCHOOLS**

-The information contained in this paper is to enable the head of school and teacher in charge of Biology to make adequate preparations for this year's Biology mock practical examination. NO ONE ELSE should have access to this paper or acquire knowledge of its contents. Great care must be taken to ensure that the information herein does not reach the candidates either directly or indirectly.

-The Biology teacher is NOT expected to perform the experiments

- The apparatus required by each candidate for the Biology mock practical examination are set out on the next page. It is expected that the ordinary apparatus of a Biology laboratory will be available.

- The Biology teacher should note that it is his/her responsibility to ensure that each apparatus acquired, for this examination agrees with specifications on the next page.

### ***Each candidate will require the following:***

- 10cm<sup>3</sup> of dilute hydrogen peroxide.
- 1 piece of Irish potato.
- 1 boiling tube
- Source of heat
- Small piece of kimbo fat labeled as substance Z
- 2cm<sup>3</sup> of milk in test tube labeled as solution C
- 1 piece of lemon labeled X
- 2 clean test tubes
- 2cm<sup>3</sup> of sodium hydrogen carbonate solution.

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

**231/3**  
**BIOLOGY**  
**PAPER 3**  
**PRACTICAL**  
**JULY/AUGUST- 2014**  
**TIME: 1 ¾ HOURS**

Candidate's Signature .....

Date: .....

## **RACHUONYO SOUTH SUB - COUNTY JOINT EVALUATION EXAM**

*Kenya Certificate of Secondary Education (K.C.S.E.)*

**231/3**  
**Biology**  
**Paper 3**  
**1 ¾ Hours**

### **INSTRUCTIONS TO CANDIDATES**

- Write your **name** and **indexnumber** in the spaces provided above
- **Sign** and write the **date** of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.
- You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Additional pages must not be inserted.
- Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.
- candidates must answer all questions in English

#### **For Examiners Use Only**

<b>Question</b>	<b>Maximum score</b>	<b>Candidate's score</b>
1		
2		
3		
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. Take 2 clean test tubes and into each add 5cm<sup>3</sup> of dilute hydrogen peroxide. Label the test tubes as **A** and **B**.

Cut 2 cubes of irish potato measuring 1cm<sup>3</sup> each. Boil one cube in a boiling tube with some water for about 5 minutes.

Drop the boiled cube into test tube **A** and unboiled cube in test tube **B**. State your observations

(a) Test tube **A** (1mk)

.....  
.....

Test tube **B** (1mk)

.....  
.....

(b) Account for your observations in Test tube **A** (1mk)

.....  
.....

Test tube **B** (2mks)

.....  
.....

(c) Take a small piece of substance **Z** provided and add to it 2cm<sup>3</sup> of sodium hydrogen carbonate.  
(i) State your observations (1mk)

.....  
.....

(ii) Which physiological process in the body is illustrated above (1mk)

.....  
.....

(iii) State the part of the body where the process takes place. (1mk)

.....  
.....

(iv)What is the significance of the process (1mk)

.....  
.....

(d) Put 2cm<sup>3</sup> of liquid labelled as **C** into a test tube. Squeeze some juice from specimen **X** into a beaker. Draw some of the juice into a dropper. Add 3 drops of the juice into the test tube with solution **C**.

(i) State your observation. (1mk)

.....  
.....

(ii) State the part of the human body where the physiological process demonstrated above occurs and the enzyme that carries out the process. (2mks)

Part of body

.....  
.....

Enzyme

.....

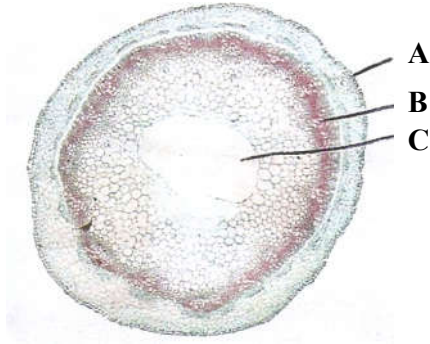
(iii) Which gland produces the enzyme stated in (ii) above. (1mk)

.....

(iv) Which hormone stimulates the production of the enzyme stated in (II) above. (1mk)

.....

2. The diagram below shows an electron micrograph of across section of a part of a plant.



a) State the class of the plant from which the section was obtained. (1mk)

.....

b) Give a reasons for your answer (1mk)

.....

c) Label the structures labelled **A**, **B**, and **C** and state **one** functions in each (6mks)

**A**.....

Function

.....

**B**.....

Function

.....

**C**.....

Function

.....

d) The diagram below represents a longitudinal section of a fruit.



(i) State the type of fruit (1mk)

.....

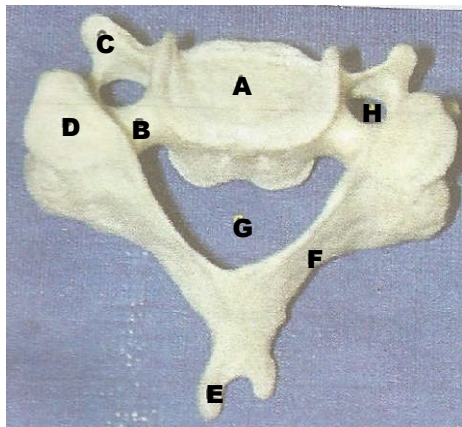
(ii) Give a reason for your answer in (i) above (1mk)

.....

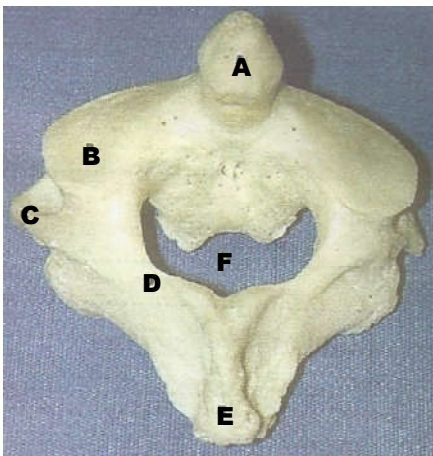
- (iii) State the type of placentation in the fruit and give a reason for your answer (2mks)  
Placentation

Reason

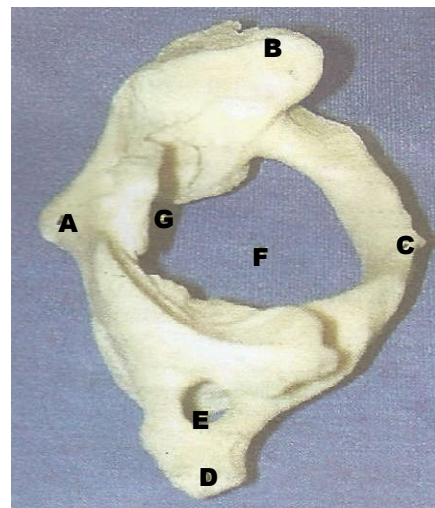
3. The photographs below are bones from the same mammal. Examine the bones and answer the questions that follow.



Photograph 3.03



Photograph 3.02



Photograph 3.01

- (a) Name the body region from which the bones were obtained. (1mk)  
.....
- (b) Name the bones in terms of 3.01, 3.02 and 3.03 in the correct order from anterior to posterior. (1mk)  
.....
- (c) Name and state the function of the following part labelled as
- (i) F in photograph 3.02 (2mks)  
.....
- (ii) H in photograph 3.03 (2mks)  
.....
- (iii) A in photograph 3.02 (2mks)  
.....
- (d) Identify the bones in photograph (3mks)  
3.01 .....  
3.02 .....  
3.03 .....
- (e) Name the bones that articulate with bone in photograph 3.03 in the distal end (1mk)  
.....
- (f) How is structure labelled C in photograph 3.03 adapted to its function (2 mks)  
.....  
.....

**RACHUONYO SOUTH SUB COUNTY JOINT EVALUATION EXAM  
JULY/AUGUST 2014  
231/3  
BIOLOGY PAPER 3  
MARKING SCHEME**

**Question 1**

- A (a) No bubbles/effervescence;  
(b) Bubbles/effervescence/foam observed
- B (a) Catalase enzyme denatured by high temperatures hence no reaction  
(b) Catalase enzyme; broke down hydrogen peroxide into water and oxygen hence bubbles;
- C (i) Broken down into small droplets;  
(ii) Emulsification;  
(iii) Duodenum;  
(iv) Increases the surface area for enzymes to speed up the rate of digestion;
- D (i) Liquid forms solid particles/liquid curdles;  
(ii) Part of body – stomach;  
Enzyme –Renin;  
(iii) Gastric glands  
(iv) Gastrin hormone;

**Question 2**

- (A) Dicotyledonae;  
(B) Vascular bundles arranged around the cambium ring/has pith/has cambium ring;  
(C)  
A- Epidermis  
Protect inner tissues from mechanical injury/prevents excessive loss of water;  
B- Vascular bundles;  
Transport of water and mineral salts and manufactured food;  
C- Pith  
Stores food;  
(D)(i) Berry;  
(ii) Many seeds  
(iii) Basal placentation;  
Placenta occurs at base of the ovary;

**Question 3**

- (a) Cervical/Neck region;  
(b) 3.01; 3.02; 3.03;  
(c) (i) Neural canal  
Passage of the vertebral column  
  
(ii) It vertebral canal;  
Passage of vertebral artery;  
(iii) Odontoid peg process;  
Articulate into the neural canal of atlas allowing turning/rotation of the head;
- (d) Thoracic vertebrate;  
(e) Broad and wing like to offer large surface area for attachment of neck muscles