

**SUBUKIA DISTRICT JOINT EXAMINATION
JULY/AUGUST EXAMS 2014
FORM 4 BIOLOGY**

**231/3
BIOLOGY
(Practical)**

CONFIDENTIAL

Each student should be provided with:

- Three test tubes in a test tube rack.
- One Boiling Tube.
- A solution of **Glucose** and **Starch** labeled solution **S**.
- Droppers

Access to:

- Iodine Solution (Solution A)
- Benedict's solution (Solution B)
- 10% Sodium hydroxide (Solution E)
- 1% Copper Sulphate (solution D)
- Means of heating

[Type text]

Biology Practical (paper 3)

***Subukia District Joint Examination
July / August- 2014***

[Type text]

Name..... INDEX No.....

Student's Signature.....

Date.....

231/3
 BIOLOGY
 Paper3
 (Practical)
 JULY/ AUGUST 2014
 1¾ hrs.

SUBUKIA SUB- COUNTY JOINT EXAMINATION

Kenya Certificate of Secondary Education
 BIOLOGY
 Paper3
 (Practical)
 JULY 2014
 1¾ hrs.

Instructions

- (a) Write your **name** and **admission number** in the spaces provided at the top of this page.
 (b) Sign and write the date of examination in the spaces provided above.
 (c) Answer **ALL** the questions.
 (d) You are required to spend the first 15 minutes of the 1¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
 (e) Answers **MUST** be written in the spaces provided in this question paper.
 (f) Additional pages **MUST NOT** be inserted.
 (g) **This paper consists of five (5) printed pages.**
 (h) **Check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

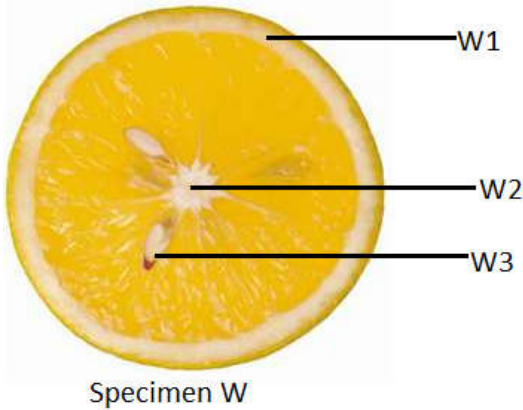
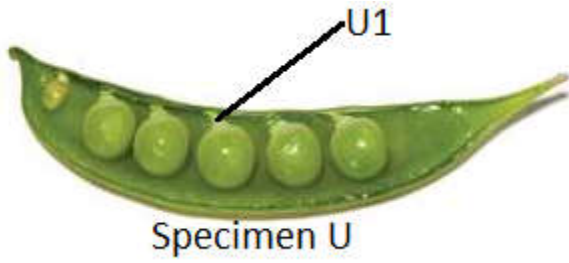
For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	09	
2	16	
3	15	
Total Score	40	

1. You are provided with solution **S**, Iodine solution (Solution A), Benedict's solution (solution B), Sodium Hydroxide Solution (NaOH) (Solution C) and Copper Sulphate solution (Solution D). Carry out the tests as indicated in the table below. *(9 mks)*

Test	Procedure	Observations	Conclusion

2. Study the specimens provided below.



(a) Name the parts labeled **U1**, **W1**, **W2** and **W3**. (4 mks)

U1
.....

W1
.....

W2
.....

W3
.....

(b) (i) Suggest the mode of dispersal of the specimen labeled **U**. (1 mk)

.....

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

.....

(c) (i) Suggest the mode of dispersal of the specimen labeled **X**. (1 mk)

.....

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

.....

(d) On the specimen **V**, label the mesocarp and placenta. (2 mks)

(e) State **two** advantages of dispersal in plants. (2 mks)

.....
.....

(f) State the type of placentation of specimen **U**, **V** and **W**. (3 mks)

U

.....

V

.....

W

.....

(g) What is parthenocarpy? (1 mk)

.....
.....

3.You are provided with the specimens below.



Specimen K



Specimen L



Specimen M



Specimen N



Specimen O



Specimen P



Specimen Q

(a) Giving reasons, state the classes in which specimens **K**, **L** and **M** belong. (6 mks)

Specimen K

.....

Reason

.....

Specimen L

.....

Reason

.....

Specimen **M**

.....

Reason

.....

(b) Specimen **N**, **P** and **Q** represent life stages of insects. Identify the specimens. *(3 mks)*

N

.....

P

.....

Q

.....

(c) Give **two** reasons why specimen **N** represents a very important life stage in insects. *(2 mks)*

.....

.....

(d) Give **one** way in which specimen **M** differs from specimen **O**. *(1 mk)*

.....

(e) On specimen **N**, label the head and prolegs. *(2 mks)*

(f) Give **one** way in which specimen **K** is a health hazard. *(1 mk)*

.....

SUBUKIA SUB- COUNTY JOINT EXAMINATION-2014
FORM 4 K.C.S.E.

231/3Biology

Paper 3

(Practical)

MARKING SCHEME

1.

Test	Procedure	Observations	Conclusion
Reducing sugars	<ul style="list-style-type: none"> Put 2 ml / cm³ of solution S in a test tube. Add 2 ml /cm³ of Benedict's solution and heat in a water bath to boil. <p>Reject.</p> <ul style="list-style-type: none"> <i>Benedit, Benedictus, Benedit, Benedict ,Benedic, Benedicts.</i> <i>Add few drops of Benedict's solution</i> 	<p>Colour changed from blue to green/ yellow/orange.</p> <p>Reject.</p> <ul style="list-style-type: none"> <i>Colour changes from colourless to</i> <i>Brick red</i> 	<p>Non- Reducing sugars present</p> <p>Reject.</p> <ul style="list-style-type: none"> <i>Presence of reducing sugars after hydrolysis.</i> <i>Colour changes from colourless.</i>
Proteins	<ul style="list-style-type: none"> Put 2 ml /cm³ of solution S in the test tube. Add equal amt (2 ml/cm³) of NaOH while shaking. Then add CuSO₄ dropwise and shaking well after each addition. <p>Reject</p> <ul style="list-style-type: none"> ➤ <i>Add 2-3 drops of NaOH</i> ➤ <i>Deny the wrong addition order of NaOH and CuSO₄.</i> 	<p>No colour Change</p> <p>Reject:</p> <ul style="list-style-type: none"> <i>wrong spelling of the colours i.e. Violet</i> 	<p>Proteins absent.</p> <p>Reject:</p> <ul style="list-style-type: none"> <i>Wrong spelling of Proteins.</i>
Starch	<p>Put 2 ml/cm³ of Solution S in a test tube.</p> <p>Then add Iodine solution drop by drop while shaking.</p> <p>Reject:</p> <p><i>Denial everything when heating is included</i></p>	<p>Colour changes to Blue Black.</p>	<p>Starch Present</p>

NOTE:**Points to be noted when marking Question one.**

- just one tick for colour changes if the colour change sequence is collect.
- Technical terms must be correct. i.e. ***Benedict's not Benedit or Benedict.***
- Correct sequence of adding reagents **MUST** be followed.
- Units **MUST** be correct. i.e. ***cm³ but not m³ / mm³***
- Correct sequence of colour changes **MUST** be correct.
- Incase of wrong formulae underline and continue marking.

2. **Name the parts labeled U1, W1, W2 and W3.****(4 mks)**

(a) U1 – Funicle W1 – Mesocarp W2 – Placenta W3 – Seed

(b) (i) **Suggest the mode of dispersal of the specimen labeled U.****(1 mk)**

- Self/Explosive mechanism.

(ii) **give a reason for your answer in (b) (i) above.****(1 mk)**

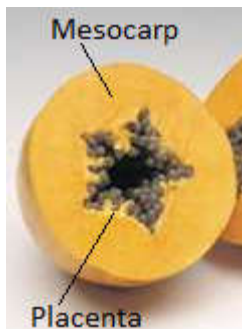
- Line of weakness on pods.

(c) (i) **suggest the mode of dispersal of the specimen labeled X.****(1 Mk)**

- Animal dispersal

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

Presence of hooks

(d) **on the specimen V, label the mesocarp and placenta.****(2 mks)**(e) **State two advantages of dispersal in plants.****(2 Mks)**

Colonisation of new habitats;

Reduces overcrowding and competition of resources.

(f) **state the type of placentation of specimen U, V and W.****(3 mks)**

U – Marginal V – Parietal (Rej. Parental/Parietal) W – Axile (Rej. Axle/Axial/Axial)

(g) **What is perthenocarpy?****(1 Mk)**

Formation of fruits without fertilization taking place.

3. **You are provided with the specimens below.**

(a) **Giving reasons, state the classes in which specimen K, L and M belong.** (6 Mks)

Specimen K – Insecta

Reason:

- Body divided into three parts;
- Has a pair of compound eyes;
- Has three pairs of legs;
- Has one pair of antennae;

Specimen L – Mammalia

Reason:

- Body covered by fur;
- Has ear pinnae / External ear (**Rej. Pinna**);
- Have double circulatory system;
- Have four limbs;

Specimen M – Chilopoda

Reason:

- A pair of legs per segment;
- Have more than 15 segments;
- Body is divided into head and trunk;
- Head has a pair of antennae;

(b) **Specimen N, P and Q represent life stages of insects. Identify the specimens.** (3

Mks) N – Larva/Caterpillar P – Pupa Q – Eggs (Rej. Egg)

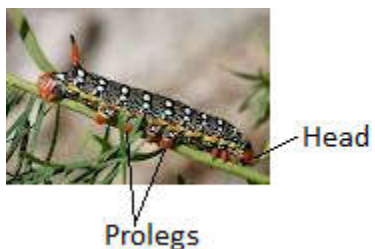
(c) **Give two reasons why specimen N represents a very important life stages in insects.**(2mks)

- Avoids predation;
- Feeds a lot to have enough food reserves for the pupal stage.

Give one way in which specimen M differs from specimen O. (1 Mk)

- O has more legs than M/O has a pair of legs per segment while M has two pairs of legs per segment;
- O is dorsal-ventrally flattened while M is cylindrical.

(e) **On specimen N, label the head and prolegs.** (2 Mks)



(f) **Give one way in which specimen K is a health hazard.** (1 Mk)

- Spread diseases e.g. typhoid, dysentery, etc.