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

School: ..... Signature: .....

553/2
BIOLOGY
(PRACTICAL)
PAPER 2
July/August 2017
2 hours

WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

- This paper consists of **three** questions.
- Answer **all** questions.
- Drawings should be made in the spaces provided.
- Use sharp pencils for your drawings.
- Coloured pencils or crayons should **not** be used.
- No additional sheets of writing paper are to be inserted in the booklet.
- Work on additional sheets will **not** be marked.

FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

1. You are provided with solutions X and Y.

(a) Carryout the tests in the table below to determine the food nutrients present in solution X. Record your observations and deductions in table 1 below. (06 marks)

Table 1

Test	Observations	Deductions
(i) To 1cm^3 of solution X in a test tube, add 3 drops of Iodine solution.		
(ii) To 1cm^3 of solution X in a test tube add 1cm^3 of Benedict's solution and boil.		
(iii) To 1cm^3 of solution X in a test tube, add 1cm^3 of dilute sodium hydroxide solution followed by 2 drops of copper (II) sulphate solution and shake.		

(b) Put 3cm^3 of solution X into a test tube and add 2cm^3 of solution Y and incubate in water bath maintained at 35°C - 40°C for 20 minutes. After 20 minutes, repeat tests in table 1 above on the mixture.

Record your observations and deductions in table 2 below. (07½ marks)

Table 2

Test	Observation	Deductions
(i) Iodine test		
(ii) Benedict's test		
(iii) Biuret's test		

(c) (i) State the effect of solution Y on solution X. (01 mark)

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(ii) Give two reasons to support your answer in c(i) above. (02 marks)

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(d) Why was the solution:

(i) Incubated in water bath for 20 minutes. (01 mark)

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(ii) Incubated in the water bath at 35°C - 40°C. (1½mark)

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(e) State the factor which is being investigated in this experiment. (01 mark)

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2. You are provided with specimens P, Q, R and S which are leaves.

(a) Give two observable features which show that the specimens P, Q, R and S are leaves. (02 marks)

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(b) (i) Specimens P and Q perform other special functions in addition to their usual functions.

Describe how each of these specimens P and Q is adapted for its special function(s). (03 marks)

Specimen P.

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.....

.....

Specimen Q.

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.....

(ii) Basing on one observable feature, state one function carried out by all Specimens P, Q, R and S. (02 marks)

Function;

.....

.....

Observable feature;

.....

.....

(c) Describe specimen S. (03 marks)

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(d) Using the characteristic features of the lamina only, construct a dichotomous key to identify the specimens P, Q, R and S. (03 marks)

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(c) Draw and label specimen P. State the magnification. (06 marks)

5. You are provided with specimens F, G and H.

(a) Examine the specimens and give three reasons, for identification of the phylum to which they belong.

(01 mark)

Phylum;

.....

.....

(03 marks)

Reasons;

.....

.....

.....

.....

(b) Observe the mouth parts of the specimens F, G and H. Explain two ways in which each is adapted to it's functions.

(02 marks)

(i) Mouth parts of F;

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.....

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(02 marks)

(ii) Mouth parts of G;

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.....

.....

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(02 marks)

(iii) Mouth parts of H;

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(c) Observe the thorax of F and G. Give four differences between F and G.

(04 marks)

Specimen F	Specimen G

(d) With the aid of a hand lens, observe the lateral view of the head of specimen G. Draw and label. State the magnification of your drawing. (07 marks)

END

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553/2
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PAPER 2
July/August 2014
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WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

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FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

1. Specimen L_1 and L_2 are leaflets of the same plant species and same age but subjected to different environmental conditions.
Carry out the following treatments on specimens L_1 and L_2 using the chemicals and reagents provided.

(i) Put $5cm^3$ of water in a boiling tube and add specimen L_1 then boil for 2 minutes.
(ii) Pour off the water and add ethanol to completely cover specimen L_1.
Place the boiling tube in boiling water for about 5 minutes.
(iii) Remove specimen L_1 and dip it in cold water for about 1 minute then carefully spread it out on a white tile.
(iv) Add 2 drops of iodine solution on the surface of specimen L_1, leave it for about 3 minutes and observe.
(v) Repeat the above procedures (i) – (iv) with specimen L_2.

a) Record your observations and conclusions in the table below. (06marks)

Specimen	Observation	Conclusion
L_1		
L_2		

b) Why were specimens L_1 and L_2;

(i) boiled in water (02 marks)

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.....

(ii) boiled in ethanol (02 marks)

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(iii) dipped in cold water (02 marks)

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c) From your observations in table (a) above, suggest with a reason the environmental conditions that specimens L_1 and L_2 were subjected.

(i) L_1

Condition (02 marks)

.....

Reason

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.....

.....

(ii) L_2 (02 marks)

Condition

.....

Reason

.....

.....

.....

d) What was the experiment designed to investigate? (01 mark)

.....

.....

2. You are provided with specimens P and Q which are fruits. Cut specimen P and Q longitudinally, and answer the following questions.

a) Giving one reason in each case, identify the types of fruits specimen P and Q;

Specimen P: ..... (02 marks)

Reason

.....

.....

Specimen Q: ..... (02 marks)

Reason.

.....

.....

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b) i) State the type of placentation for specimen P and Q. (01 mark)

Placentation of specimen P:

.....

.....

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(01 mark)

Placentation of specimen Q:

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.....

ii) Describe the arrangement of seeds in specimen Q. (01 mark)

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iii) Describe the mode of dispersal of specimen Q. (02 marks)

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.....

c) Outline **two** similarities and **four** differences between specimen P and Q. (02 marks)

Similarities: .....

.....

.....

.....

Differences (04 marks)

Specimen P	Specimen Q
(i)	
(ii)	
(iii)	
(iv)	

d) Draw and label one half of specimen Q in the space provided below. State your magnification. (06 marks)

3. You are provided with specimen F and G.

a) With **three** reasons give the phylum to which the specimens belong (04 marks)

Phylum:
.....

Reasons: .....
.....
.....
.....

b) State **three** characteristics which make specimen F and G belong to the same class. (03 marks)
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c) Study the thorax region of both specimens F and G. Give **four** differences between the thorax of specimen F and G. (04 marks)

Specimen F	Specimen G
(i)	
(ii)	
(iii)	
(iv)	

d) Examine the hind legs of specimen F. Describe how they are adapted to their functions. (03 marks)

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e) Using a hand lens, observe the head of specimen F.
In the space below, draw and label the dorsal view of the head region of specimen F. State your magnification. (07 marks)

- END -

553/2 Inst. Sch.
BIOLOGY PRACTICAL
INSTRUCTIONS
July/August 2014

WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY PRACTICAL INSTRUCTIONS

553/2 Inst. Sch.

July/August 2014

CONFIDENTIAL;

This information is given only to facilitate preparation of the examination.

Great care should be taken that the information given below does not reach the candidates either directly or indirectly.

INSTRUCTIONS FOR PREPARING SPECIMENS AND APPARATUS.

The teacher responsible for preparing specimens must ensure that candidates are provided with correct specimens and other materials as specified in these instructions.

Specimens and solutions which have been assigned codes should be presented to candidates using those **codes only** and not any other identity and displayed clearly for candidates to see.

The head teacher **must** ensure that the teacher responsible for preparing the specimens and apparatus hands in his/her trial results for physiology/ biochemistry question, properly sealed in a separate envelope and **firmly** fastened (attached) to the candidates' scripts envelope(s).

Each candidate should be provided with the following;

A leaflet of a destarched leaf of Cassia plant (put in black polythene and kept in darkness for 48 hours) labeled L_1

A leaflet of a fresh leaf from same cassia plant (that has been exposed to sunlight) labeled L_2

- Glass beaker of $250cm^3$ capacity.
- Boiling tube
- $10cm^3$ of ethanol

A freshly killed mature cockroach labeled F

A freshly killed mature housefly labeled G

A mature Orange fruit labeled Q

Mature Avocado / mango fruit labeled P

A knife

A hand lens

Source of heat

Reagents for food test

END

This form must be completed and returned in a separate envelope firmly attached to the scripts' envelope(s).

UGANDA CERTIFICATE OF EDUCATION

July / August- 2014

REPORT ON BIOLOGY PRACTICAL 553/2

Section I:

Any information which the teacher responsible for preparing the specimens and apparatus thinks may be useful to the examiners should be given on this sheet. The teacher must try the Physiology / Biochemistry questions and submit his/her results in the space provided below to guide the examiners about the specimens, apparatus and concentrations of the chemicals used.

[NB: Teachers who **DO NOT** submit their trial results will be held responsible for the candidates' performance].

Results:

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Section II:

The invigilator, in consultation with the teacher responsible for preparing the specimens and apparatus, should give details below of any difficulties experienced by particular candidates, giving their names and index numbers. These should include reference to:

(a) candidates who were unable to use specimens,

.....

.....

(b) insufficiency of specimens or shared specimens,

.....

.....

(c) substituted specimens,

.....

.....

(d) any other information.

.....

.....

Other cases of hardship e.g. illness, disability, should be reported directly to the Examinations Committee in the normal way.

A plan of work benches, giving details by index numbers of the places occupied by the candidates for each session, must be enclosed with the scripts.

Name..... Signature ....

(Invigilator)

Name.....Signature.....

(Teacher responsible for preparing apparatus)

Name.....Signature.....

(Head teacher)

Centre name: .....

Reference number: .....

Stamp and Date

END

NAME: ..... Index No.....

SCHOOL: ..... Signature: .....

553/2
BIOLOGY
(PRACTICAL)
PAPER 2
July/August 2011
2 hours

WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

- Answer all questions in this Paper.
- You are advised to present neat and clear work.
- No additional sheets of paper may be inserted in this booklet.
- Work on additional sheets of paper will **not** be marked.

FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

Qn 1. You are provided with solutions T and P.

a) Carry out the following to identify the food substances present in solution T. Identify the nature of solution P. Record your observations and deductions in the table below: (10marks)

Tests	Observations	Deductions
(I) To 1cm^3 of solution T in a test tube, add 3 drops of iodine solution		
(II) To 1cm^3 of solution T in a test tube add 1cm^3 of Benedict's solution and boil.		
(III) To 1cm^3 of solution T in a test tube, add 1cm^3 of dilute sodium hydroxide solution followed by two drops of copper(II) sulphate solution.		
(IV) To 1cm^3 of solution T in a test tube, add 1cm^3 of ethanol and shake thoroughly, leave it to settle then add 1cm^3 of distilled water.		
(V) To 1cm^3 of DCPIP in a test tube add T drop by drop up to 10 drops.		

a) From your results in the table above, suggest the food substances present in solution T.

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($1\frac{1}{2}$mks)

b) (i) Put 5cm^3 of T in a test tube and add an equal amount of solution P. Incubate the mixture in a water bath maintained at 35^{0}C – 40^{0}C for 20 minutes. (You may continue with other numbers in the mean time) After the twenty minutes divide the solution into 3 portions. Carry out the following tests and record your observations and deductions in the table below.

Tests	Observations	Deductions
(I) To 1cm^3 of the first portion add 3 drops of iodine solution		
(II) To 1cm^3 of the second portion add 1cm^3 of dilute sodium hydroxide followed by 3 drops of copper (II) sulphate.		
(III) To the third portion add 1cm^3 of Benedict's solution and boil.		

(6mks)

b) (ii) From your results in the table above, suggest with a reason the identity of solution P.

.....

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.....

.....

..... (1^1/$_2$mks)

b) (iii) State with a reason one property of solution P

.....

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.....

.....

.....

.....

(1^1/$_2$mks)

Qn 2. You are provided with specimens X and Y, Obtained from the same mammal.

a) Identify each specimen giving **two** reasons in each case.

i) Specimen X

.....

.....

Reasons

.....

.....

.....

.....

($2^1/_2$mks)

ii) Specimen Y

.....

.....

Reasons

.....

.....

.....

.....

($2^1/_2$mks)

b) Give **three** ways in which specimen X is adapted to its functions.

.....

.....

.....

.....

c) Give **two** similarities between X and Y. (3mks)

.....

.....

.....

.....

(2mks)

d) State **four** differences between specimens X and Y. (4mks)

Specimen X	Specimen Y
i)	
ii)	
iii)	
iv)	

e) In the space below draw and label, the anterior view of specimen Y. State your magnification. (6 mks)

Qn 3. You are provided with specimen H, which is a plant organ.

a) Examine it carefully and state its type of pollination giving three reasons.

i) Type of pollination.....

.....

(1mk)

ii) Reasons.....

.....

.....

.....

.....

.....

(3mks)

b) Observe the calyx, corolla, Androecium and Gynoecium. State two descriptive features for each case in the table below.

Structure	Description
Calyx	i)..... ii).....
Corolla	i)..... ii).....
Androecium	i)..... ii).....
Gynoecium	i)..... ii).....

(8mks)

c) Using a razor blade, cut through the centre of specimen H longitudinally in such a way to pass through the middle line of the stigma and ovary. Display one half flower. Draw and label the specimen and state your magnification. (8mks)

- END -

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

School: ..... Signature: .....

553/2
BIOLOGY
(PRACTICAL)
PAPER 2
July/August 2013
2 hours

WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

- Answer **all** questions in this paper.
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FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

1. (a) You are provided with solution K_1 K_2, and K_3. You are required to investigate the effect of K_3 and saliva on K_1 and K_2. Carry out the following tests and record your observations and deductions in the table below.

TESTS	OBSERVATION	DEDUCTION
To $1cm^3$ of K_1 add 1 – 2 drops of Iodine solution.		
To $1cm^3$ of K_2 add 1 – 2 drops of Iodine solution.		
To $1cm^3$ of K_1 add $1cm^3$ of Benedict's solution and boil for 1 minute		
To $1cm^3$ of K_2 add $1cm^3$ of Benedict's solution and boil for 1 minute		

(b) Label 4 test tubes 1, 2, 3 and 4. Make up the contents of the four test tubes as follows;

To

- **Test tube 1** add $2cm^3$ of K_1 plus $1cm^3$ of K_3
- **Test tube 2** add $2cm^3$ of K_2, plus $1cm^3$ of K_3
- **Test tube 3** add $2cm^3$ of K_1 plus $1cm^3$ of saliva
- **Test tube 4** add $2cm^3$ of K_2 plus $1cm^3$ of saliva

Place all the four test tubes in a water bath at 35°C – 40°C. Leave for 15 minutes. Remove the test tubes from the water bath and carry out the following tests. Record your results in the table below.

	TESTS	OBSERVATION	DEDUCTION
1	To $1cm^3$ of solution in test tube 1, add $1cm^3$ of Benedict's solution and boil for 1 minute.		
2	To $1cm^3$ of solution in test tube 2, add $1cm^3$ of Benedict's solution and boil for 1 minute.		
3	To $1cm^3$ of solution in test tube 3, add $1cm^3$ of Benedict's solution and boil for 1 minute.		
4	To $1cm^3$ of solution in test tube 4, add $1cm^3$ of Benedict's solution and boil for 1 minute.		

(c) (i) Explain the results obtained in
Test tube 1

Test tube 2

Test tube 3

Test tube 4

(ii) What common substance may be found in both K_3 and saliva?

(iii) State the properties of this substance exhibited in these tests.

2. You are provided with specimen **X** and **Y** which are plant organs.

(a) i) Identify the plant organs **X** and **Y.** (1 mark)

ii) State **three** reasons for your answer in a (i) above. (3 marks)

(b) Using observable features, describe how specimen **X** is suited for its function. (04 marks)

(c) Outline **four** difference between specimen **X** and **Y.** (04 marks)

Specimen **X**	Specimen **Y**
i)	
ii)	
iii)	
iv)	

(d) Explain **one** advantage specimen **X** has over specimen **Y.** (02 marks)

(e) Make a labeled drawing of specimen **Y** in the space provided below. State your magnification. (07 marks)

3. You are provided with specimen **J** and **K** which were obtained from a bird.

a) i) Identify each specimen. (02 marks)

J _____

K _____

ii) From which part of the body was each specimen obtained. (02 marks)

J _____

K _____

b) Give the names of the bones with which each specimen articulates at each of it's proximal ends.

i) Bone that articulates with specimen **J.** (01 mark)

_____

Bone that articulates with specimen **K.** (01 mark)

_____

c) Using observable features, suggest the type of joint formed at each proximal end of each specimen.

i) Type of joint at proximal end of specimen **J.** (01 mark)

_____

ii) Type of joint at proximal end of specimen K. (01 mark)

_____

d) i) State **two** functions of the specimens. (02 marks)

_____

_____

ii) How are the structures suited for the functions mentioned in d (i) above? (02 marks)

_____

_____

iii) State **three** observable differences between specimen **J** and **K.** (02 marks)

Specimen J	Specimen K

e) Draw and label specimen **K.** State your magnification. (06 marks)

- END -

NAME: ..... Index No.....

SCHOOL: ..... Signature: .....

553/2
BIOLOGY
(PRACTICAL)
PAPER 2
July/August 2012
2 hours

WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

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FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

1. You are provided with a piece of liver, hydrogen peroxide, solutions X, Y and Z.
Cut five equal pieces of liver measuring (1cm by1cm by 1cm) carry out the following tests using those pieces of liver and solutions X, Y and Z. *(13 marks)*
Record your observations and deductions in the following table.

TEST	OBSERVATION	DEDUCTION
a)i)Put 2 cm^3 of hydrogen peroxide in a test tube, test with litmus paper and add one piece of unboiled liver.		
ii)To 2 cm^3 of hydrogen peroxide in a test-tube, add 1cm^3 of solution X, test the mixture with litmus paper then add one piece of unboiled liver.		
iii)To 2 cm^3 of hydrogen peroxide in a test tube, add 1cm^3 of solution Y, test with litmus paper, then add one piece of unboiled liver.		
iv) Put 2 cm^3 of solution Z in a test-tube, add one piece of unboiled liver.		
v) Boil the last piece of liver in 1cm^3 of water in a boiling tube for 3 minutes. Remove it, and allow it to cool To 3cm^3 of hydrogen peroxide in a test tube, add the boiled piece of liver.		

b) State the factors being investigated in the experiment. *(03 mark)*

i) .....

.....

ii) .....

.....

iii) .....

.....

c) Explain your results in tests (i) – v, *(05 marks)*

Test (i) .....

.....

.....

Test (ii) .....

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.....

Test (iii) .....

.....

.....

Test (iv) .....

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.....

Test (v) .....

.....

.....

2. You are provided with specimens O, P, Q, and R.

a) Identify each specimen. *(04 marks)*

O, ...

P, ...

Q, ...

R, ...

b) Cut a transverse section through specimens O and P.

Give two differences between specimen O and P from the sections *(02 marks)*

Turn Over

SPECIMEN O	SPECIMEN P
i).....	.....
ii).....	.....

c) Examine all the specimens and give two characteristic features of each specimen. *(08 marks)*

SPECIMEN	CHARACTERISTIC FEATURES
O	.....
	.....
P	.....
	.....
Q	.....
	.....
R	.....
	.....

d) Construct a dichotomus key for the above specimens. *(03 marks)*

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e) Examine specimen Q using a hand lens.
Draw and label specimen Q. State your magnification. *(05 marks)*

3. You are provided with specimen F.

a) i) Classify the specimen into the following taxa, *(03 marks)*

Kingdom: .....

Phylum:.....

Class:.....

ii) Give one observable feature for classifying specimen F in the above phylum. *(01mark)*

.....

.....

.....

b) Examine the head of specimen F and describe its structure. *(03 marks)*

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c) State four adaptions which enables specimen F to live in its habitat. *(04 marks)*

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

(iv) .....

.....

d) Carefully examine one third of specimen F from the end of its tail fin.
Draw and label it from the lateral view. *(07 marks)*

END -

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

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553/2
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(PRACTICAL)
PAPER 2
July/August 2018
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WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

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- Answer **all** questions.
- All answers should be written in the spaces provided.
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FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

1. You are provided with extracts A and B from same plant organ, but of different plants. You are to investigate the PH and relative abundance of ascorbic acid/vitamin C in these extracts.

(a) To $2cm^3$ of extract A in a test tube, dip in damp red and blue litmus papers. Record your observations in table 1 below.

(b) Repeat the above procedure (a) using extract B.

(c) Fill in your observation in table I below.

Table 1

Extract	Observation		Conclusion
	Damp blue litmus paper	Damp red litmus paper	
A			
B			

(06 marks)

(d) Carry out the following tests on the extracts A and B and record your observations and deductions in table II below.

Table II

Test	Observations	Deductions
(i) To $1cm^3$ of extract A in a test tube, add 3 drops of Iodine solution.		
(ii) Repeat test (i) above using extract B		
(iii) To $1cm^3$ of DCPIP in a test tube add extract A drop by drop until there is no further change. Record the number of drops.		

(iv) Repeat test (iii) using extract B.		

(11 marks)

(e) Explain your results in table I above. (01 mark)

.....

.....

.....

(f) Compare results in test (d)(iii) and d(iv) and explain the number of drops used in the tests. (02 marks)

.....

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2. You are provided with specimens O and P which are plant organs.

(a) Giving one reason in each case, identify specimens O and P (04 marks)

Specimen	Identity	Reasons
O		
P		

(b) Using a scalpel/razor blade and without damaging the internal structures, carefully cut around the outside of specimen O so that you obtain two halves. For specimen P, cut it longitudinally through the position of cotyledon to obtain two halves.

(i) List down four observable features which distinguishes specimen O from specimen P in the table below. (04 marks)

Specimen O	Specimen P

(ii) Mention two similarities between specimen O and specimen P. (02 marks)

.....

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.....

(c) Describe how the structures of specimen O are adapted for growth of the specimen. (03 marks)

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(d) With the help of a hand lens, make a fully labeled drawing of one half of specimen O with internal structures. State your magnification. (07 marks)

3. You are provided with specimens W, X, Y and Z.

(a) Examine the specimens W, X, Y and Z and state three external features which are characteristic of the class to which the specimens belong.

(03 marks)

.....

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(b) Give four (4) differences between specimen Y and specimen Z. (04 marks)

Specimen Y	Specimen Z

(c) Observe the specimens W, X, Y and Z and complete the table below about the structures of the specimens: (04 marks)

Specimen	Number of wings	Number of legs
W		
X		
Y		
Z		

(d) Using the characteristics in the table above, construct a dichotomous key to identify the specimens. (03 marks)

(e) Place specimen W ventral side upper most. Draw and label the last three abdominal segments of the specimen. State your magnification. (06 marks)

END

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

School: ..... Signature: .....

553/2
BIOLOGY
(PRACTICAL)
PAPER 2
July/August 2015
2 hours

WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

- This paper consists of **three** questions.
- Answer **all** questions.
- Drawings should be made in the spaces provided.
- Use sharp pencils for your drawings.
- Coloured pencils or crayons should **not** be used.
- No additional sheets of writing paper are to be inserted in the booklet.
- Work on additional sheets will **not** be marked.

FOR EXAMINER'S USE ONLY.

Question	Marks	Examiner's No. & Initials
1		
2		
3		
TOTAL		

Turn Over

1. You are provided with hydrogen peroxide and specimens X and Y.
You are to carry out tests on the specimens X and Y following the instructions provided then answer the questions that follow.

(a) (i) Cut off a piece measuring 1cm x 1cm x 1cm from specimen X.
Crush it in a mortar using a pestle to obtain a fine paste. Add $5cm^3$ of water, mix well and decant off the liquid into a test tube.
Label it solution X.

(ii) Peel specimen Y, cut off a piece measuring 1cm x 1cm x 1cm.
Repeat procedures in(a) (i) above using this piece. Label the liquid from it as solution Y.

(b) (i) Put $1cm^3$ of hydrogen peroxide in a measuring cylinder. Using a dropper, obtain solution X and release **one** drop of solution X in a measuring cylinder containing $1cm^3$ of hydrogen peroxide and immediately start a stop clock.
Read the level of froth in centimeters after every 10 seconds for 40 seconds.

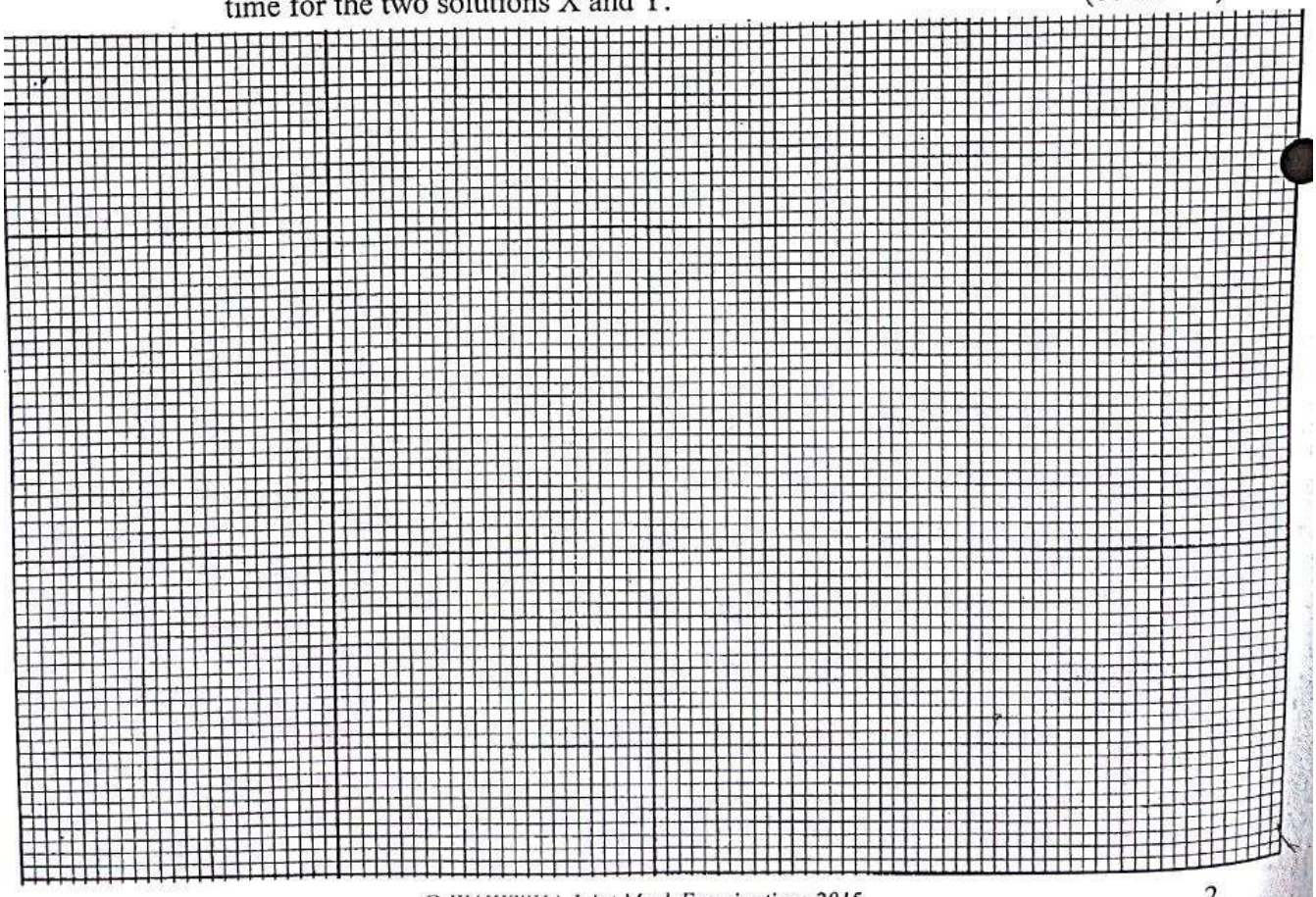
(ii) Repeat the procedures in b(i) above using solution Y with a **different** dropper.

Record your results in the table below.

Table;

Time (seconds)		10	20	30	40
Level of froth	X				
In solutions (cm)	Y				

(c) In the space provided, draw graphs to show the variation of level of froth with time for the two solutions X and Y. (07 marks)



(d) (i) Compare the two graphs in (c) above. (02 marks)

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(ii) Explain the difference in level of froth with time in X and Y. (03 marks)

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(e) How do the results of each solution relate to the activity of the organisms from which they were obtained.

(i) Solution X (02 marks)

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(ii) Solution Y (02 marks)

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2. You are provided with specimens A, B and C which are whole plants.

(a) Describe;

(i) the leaf arrangement of specimens A and B. (02 marks)

Specimens A

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Specimen B

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(ii) the margin and lamina of leaves of specimen A and B. (02 marks)

Margin

A.....

.....

B.....

.....

Lamina

A..... (02 marks)

.....

B.....

.....

(b) Give three differences between specimens B and C. (03 marks)

	Specimen B	Specimen C
(i)		
(ii)		
(iii)		

(c) How is specimen C adapted for survival in its habitat. (03 marks)

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(d) State how the mode of propagation in specimen C is advantageous and disadvantageous. (02 marks)

How advantageous?

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How disadvantageous?

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(e) Draw and label part of specimen C with two nodes. State your magnification. (06 marks)

3. You are provided with a freshly killed animal labeled T. use it to answer the questions that follow.

(a) Giving **two** reasons, identify the class to which specimen T belongs.

Class.....

.....

(01 mark)

Reasons.....

.....

.....

.....

(02 marks)

(b) Examine the trunk part of specimen T and describe the features found on the trunk. (03 marks)

(i) .....

.....

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(ii) .....

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(iii) .....

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(c) Describe how the following enable specimen T to survive in its habitat.

(i) Body shape (01 mark)

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(ii) Nictating membrane (01 mark)

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(iii) Caudal fin (01 mark)

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(iv) Eye (01 mark)

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d) Open up the operculum of specimen T and examine the exposed features.

(i) State the function of the features observed. (01 mark)

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(ii) Using observable features, state **three** adaptions of features observed to their function. (03 marks)

(i) .....

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(ii) .....

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(iii) .....

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(e) Examine the pectoral fin. Draw and state your magnification. Do not label. (05 marks)

END

NAME.....INDEX NO.....

SIGNATURE.....

553/2
BIOLOGY PRACTICAL
Paper 2
July/August 2009
2 Hours

WAKISSHA JOINT MOCK EXAMINATIONS
Uganda Certificate of Education
BIOLOGY (PRACTICAL)
PAPER 2
2 Hours

INSTRUCTIONS

- *Answer **all** questions*
- *Answers must be written in the spaces provided*
- *Work done on additional sheets of paper will not be marked.*
- *You are advised to present neat and clear work.*

FOR EXAMINERS' USE ONLY

Question No.	Marks	Initials
1		
2		
3		
TOTAL		

1. You are provided with solutions M and N. You are also provided with Solution Y. Using the information in the table below, carry out the following tests to find the constitution of the given solutions.

Test	Observation	Conclusion
i) To $1cm^3$ of M in a test tube, add 2 -4 drops of iodine solution.		
ii) To $1cm^3$ of M, add $1cm^3$ of Benedict's solution and boil.		
iii) To $1cm^3$ of solution M, add 2 -4 drops of hydrochloric acid and boil, cool and then add an equal volume of solution Y. Shake and then add $2cm^3$ of Benedict's solution and boil.		
v) To $1cm^3$ of N add an equal volume of Benedict's solution and boil.		

vi) To 1cm^3 of N add 3 drops of hydrochloric acid and boil. Cool and then add 1cm^3 of Y followed by 2cm^3 of Benedict's solution and boil.		
vii) To 1cm^3 of N add 2 drops of iodine solution		

(14 marks)

a) Why was it necessary to boil solutions M and N with (02 marks)

i) Hydrochloric acid.

_____

_____

ii) Y_____

_____

_____

b) i) Suggest the food components in solutions M and N. (03marks)

_____

_____

_____

_____

ii) Identify solution Y

(01mark)

_____

c) Suggest one natural source of the substance in solution N. (01mark)

_____

2 You are provided with specimens A, B, C and D. Cut specimens A and B transversely and open up specimen C longitudinally to expose the seeds.
In the table below, state the identity and type of placentation for the specimens.

Specimen	Identity	Placentation
i) A		
ii) B		
iii) C		
iv) D		

(4marks)

b) Draw a transverse section of specimen B (06marks).

c) List two similarities between specimens B and C. (02marks)

(i)_____

_____

(ii)_____

_____

d) List 4 differences between specimens B and C (4marks)

Specimen B	Specimen C
i)	
ii)	
iii)	
iv)	

e) With reasons state the mode of dispersal of specimen D. (02marks)

_____

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_____

3. You are provided with specimens X_1, X_2, and X_3 got from the same bird.

a) Identify specimens X_1, X_2 and X_3 giving a reason for each answer. (4 ½ marks)

i) specimen X_1 _____

Reason: _____

_____

ii) specimen X_2 _____

Reason _____

_____

iii) Specimen X_3

Reason_____

b) Suggest any two (2) general functions of specimens X_1, X_2 and X_3 to the bird. (02marks)

i)_____

ii)_____

c) State two similarities and three differences between X_1 and X_3 (2 marks)

Similarities:

_____

_____

_____

_____

Differences: (03marks)

X_1	X_3

d) Put two drops of water on specimen X_2 and observe carefully for one minute

(i) State your observation (01mark)

(ii) Of what significance is the observation in d(i) above to the bird from which the specimen was obtained (01marks)

e)i) State two adaptations of specimen X_1 to its functions (02marks)

(ii) Make labeled drawing of specimen X_1 in the space below (05marks)

END