TOP STUDENT KCSE

BIOLOGY PAPER 3 PREDICTIONS

(SERIES 1)

FOR MARKING SCHEMES

AND OTHER SIMILAR

RESOURCES,CALL/WHATSAPP

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N/B:DUE TO HIGH COSTS INCURRED

WHILE COMING UP WITH THIS AND OTHER SIMILAR RESOURSES,

MARKING SCHEMES ARE NOT FREE OF

CHARGE.

QUESTIONS ARE FREE

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 1 CONFIDENTIAL

Each student should be provided with the following:

1. 10cm visking tubing
2. $50cm^3$ Iodine solution
3. $20cm^3$ starch suspension
4. 100ml beaker
5. 30cm sewing thread
6. A dropper
7. Distilled water.

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 1

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES

- *Write your name and index number in the spaces provided at the top of this page.*
- *Answer **all** questions in the spaces provided after each question. Additional pages must not be inserted.*
- *You are required to spend the first 15 minutes of the1 ¾ hours allowed for this paper reading through the whole paper carefully before commencing your work.*
- *Candidate may be penalized for recording irrelevant information and for incorrect spelling especially of technical terms*

FOR EXAMINERS USERS ONLY

Question	Maximum Score	Candidate's Score
1	14	
2	14	
3	12	

Total score	**40**	

1. Study photographs shown below then answer the questions.

Q





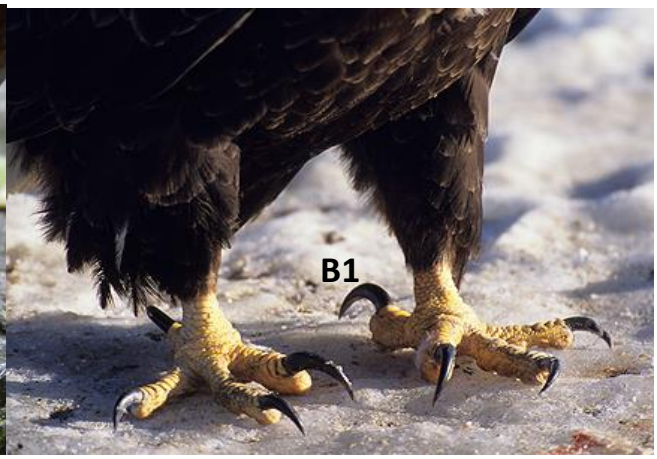
R

S



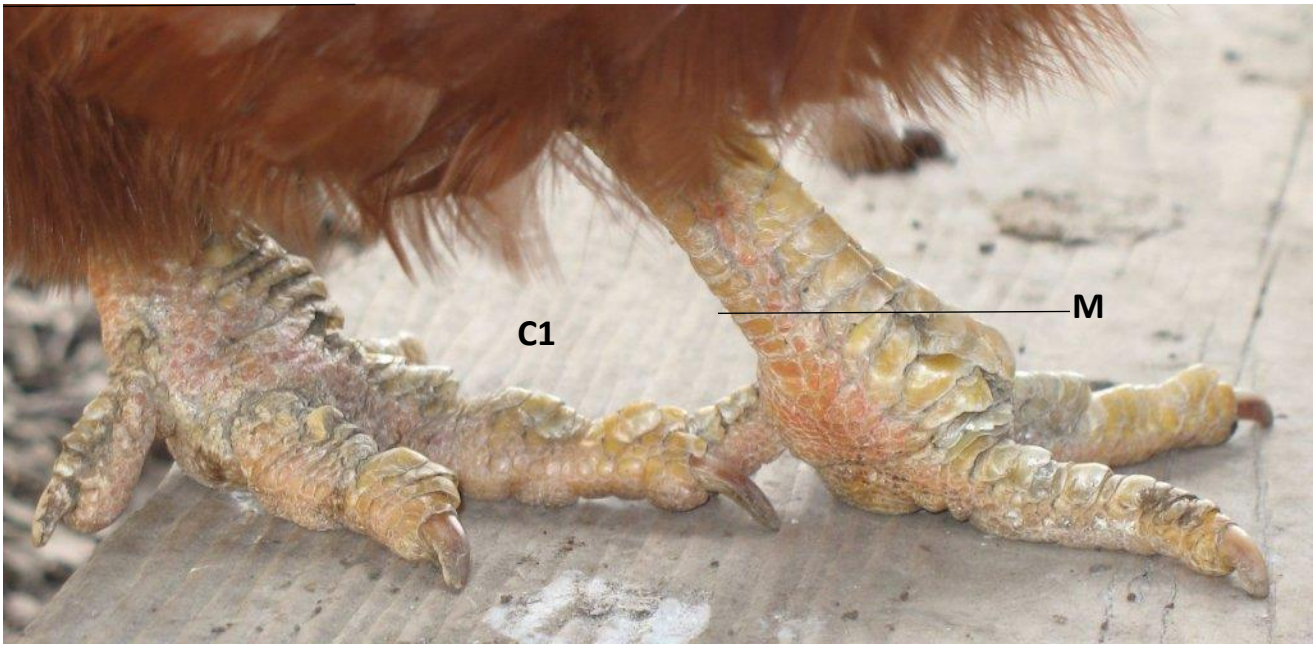
A





B

C



(a) ***State*** the type of evolution represented by structures Q_1, R_1 and S_1. **(1mk)**

……

……

(b) ***Explain*** the type of evolution identified in (a) above. **(1mk)**

……

……

(c) ***Give*** the evolution term used to describe structures:

(i) Q_1, R_1 and S_1 **(1mk)**

……

……

(ii)A_1, B_1 and **C_1** **(1mk)**

……

……

d) *What* type of evolution is illustrated by the limbs **A1**, **B1** and **C1**? **(1mk)**

……

……

……

e) (i) *Name* class for each **Q, R** and **S.**

Q **(1mk)**

……

……

R **(1mk)**

……

……

S **(1mk)**

……

……

(ii) *Give two* observable reasons for your answer for class **S.** **(2mks)**

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(f) (i) *Suggest* the diet of animals **B** and **R**.

B **(1mk)**

……

……..……

R **(1mk)**

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……..……

(ii) How is beak of animal **B** adapted to its function? **(1mk)**

……

……..……

g) How are animals A, B and C adapted for thermoregulation? **(1mk)**

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……

2. You are provided with Iodine solution, starch suspension and visking tubing.

- Wet the visking tubing in running water to soften it and make it easy to open. Tie one end of the tubing tightly.
- Using a dropper, put starch suspension into the tubing until about three-quarters full.
- Tie the open end of the tubing tightly.
- Ensure that there is no leakage at both ends of the tubing.
- Clean outer surface of the visking tubing over running water to remove all traces of starch Suspension.
- Place the visking tubing containing starch suspension into the beaker with iodine solution and leave the set up undisturbed for about 30minutes.
- Remove the tubing from the beaker and observe.

(a) Record your observation in a table by indicating the colour of the solution at the beginning on at the end of the experiment. **(4mks)**

	Starch solution inside tubing	Iodine solution in the beaker
Start experiment		
End of experiment		

(b) Account for the observations. **(6mks)**

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(c) Explain the modifications you could have made to realise faster results in the above experiment. **(2mks)**

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……

(d) State the importance of the process under investigation in the above experiment in both plants and animals as far as reproduction is concerned. **(2mks)**

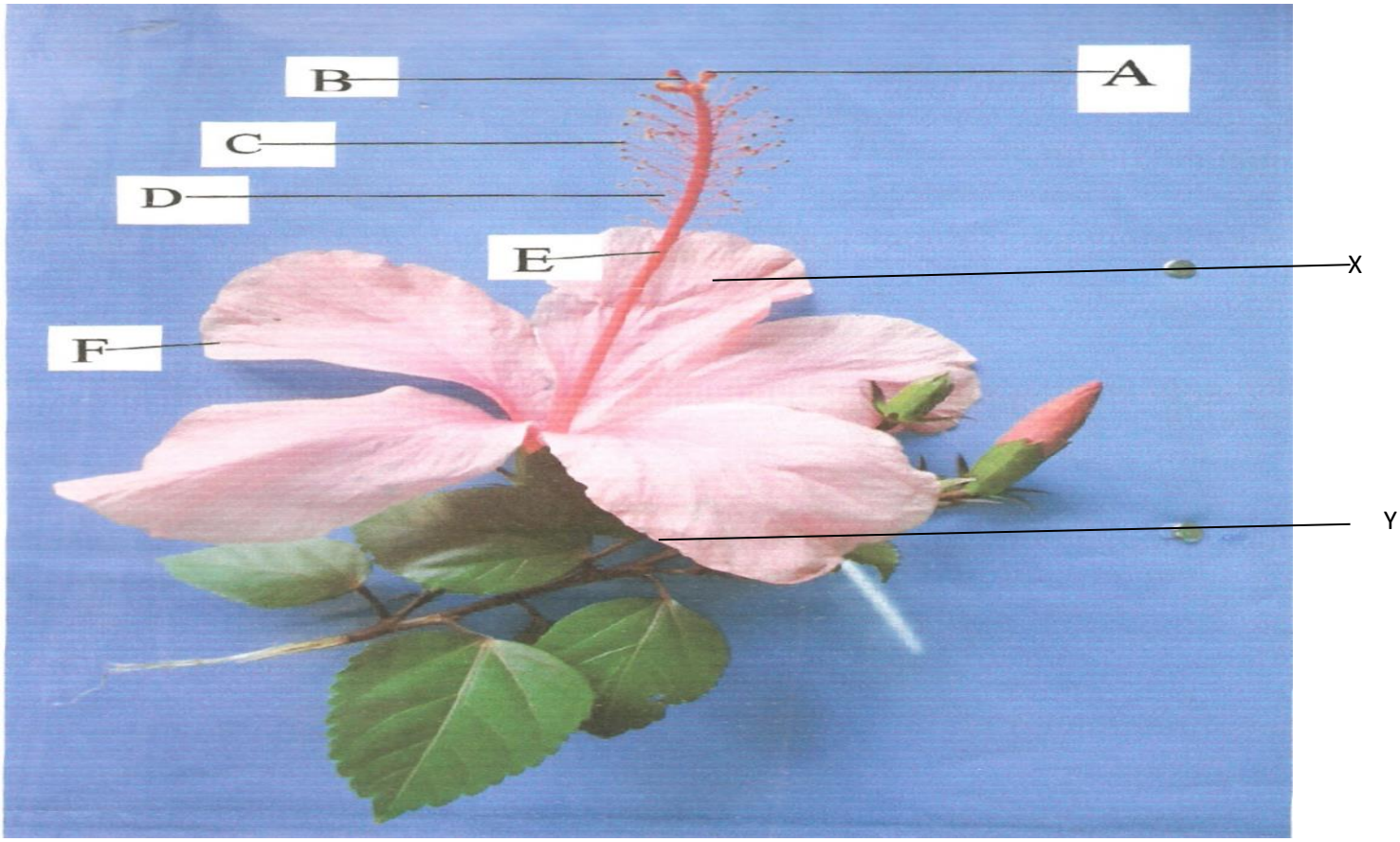
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3. You are provided with a photograph of a flower of a higher plant.



(a) With reasons, state the class of kingdom plantae from which the specimen in the diagram was obtained.

Class **(lmk)**

.....

.....

Reasons **(2mks)**

.....

.....

.....

(b) Name the parts labeled **A, E**, and **F.** **(3mks)**

A:

……

……

E:

……

……

F:

……

……

(c) State how the specimen shown in the photograph is adapted to its mode of pollination.

(2mks)

……

……

……

(d) Label the structure in the photograph which protects the flower before it blooms.

(1mk)

……

……

(e) Which letter in the photograph represents structure where the male gametes are produced. **(lmk)**

……

……

(f) Calculate the image magnification of the leaf from point X to Y if its actual length was 2cm. show your working. **(2mks)**

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 2 CONFIDENTIAL

Each student should be provided with the following

- 25ml bicarbonate indicator
- Lime water
- A drinking straw
- 2 test tubes
- 10ml measuring cylinder
- A boiling tube
- Dilute hydrochloric acid
- Dilute sodium hydroxide

NAME……..……ADM NO……

SCHOOL……..……..CLASS……

DATE…….……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 2

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES:

- *Write your **name** and **admission number** in the spaces provided.*
- *Sign and write **date** of examination in the spaces provided above*
- *Answer **all** the questions in section **A** and **B***
- *You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully.*

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1	10	
2	16	
3	14	
TOTAL	**40**	

1.(a) Place 2ml of bicarbonate indicator in a clean test tube. Add dilute hydrochloric acid drop by drop and shake after each drop till there is a permanent color change.

(i) State the resulting color **(1mk)**

.....

.....

.....

(ii) To the mixture obtained above, now add sodium hydroxide solution dropwise until there is a permanent color change. Record your observations **(1mk)**

.....

.....

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(iii) From your observations in a) i) and a) ii) above, what is the nature of the bicarbonate indicator **(1mk)**

.....

.....

(b) Place 10ml of a fresh bicarbonate indicator in boiling tube. Using a drinking straw, bubble air through the bicarbonate indicator until there is color change

(i) Record your observation **(1mk)**

.....

.....

(ii) What does the color obtained in b) i) above suggest about the nature of the gas breathed out **(1mk)**

.....

.....

c) Rinse the measuring cylinder and use it to place 2ml of lime water solution in a clean test tube. Rinse the drinking straw in (b) above and use it to bubble air through lime water solution

(i) Record your observation **(1mk)**

.....

.....

(ii) Suggest the identity of the gas that give rise to the observations above **(1mk)**

.....

.....

(d)(i) Name the physiological process in cells that leads to formation of gas named in (c)(**ii)** above **(1mk)**

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(ii) Write down a word equation for the process named in (d) (i) above **(1mk)**

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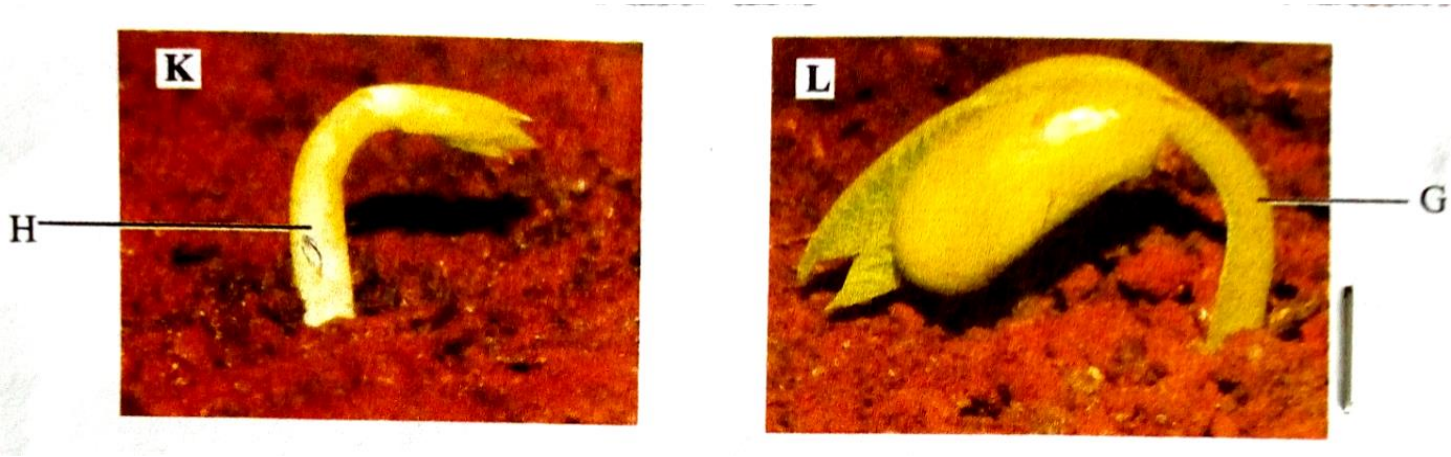
(iii) What is the importance of the identified process in cells of living organisms

(1mk)

.....

.....

2. Below are photographs of two seedlings labeled K and L. Examine them.



a) Given that the two plants belongs to the same class, name the class and give a reason based on the observable features in any of the two seedlings or both. **(2mks)**

Class

.....

.....

Reason(s)

.....

.....

.....

b) i) State giving a reason, the type of germination that occurs in each of the two seedlings **(4mks)**

K

.....

.....

.....

L

.....

.....

.....

ii) Explain how the two types of germination you have stated in (b) (i) above occur

(2mks)

K

……

……

L

……

……

c) Name the parts labelled H and G on the seedling **(2mks)**

H

……

……

……

G

d) As germination progresses, both seedlings straightens. Explain how this occurs.

(4mks)

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e) Name the type(s) of root system that will develop in the two seedlings **(1mk)**

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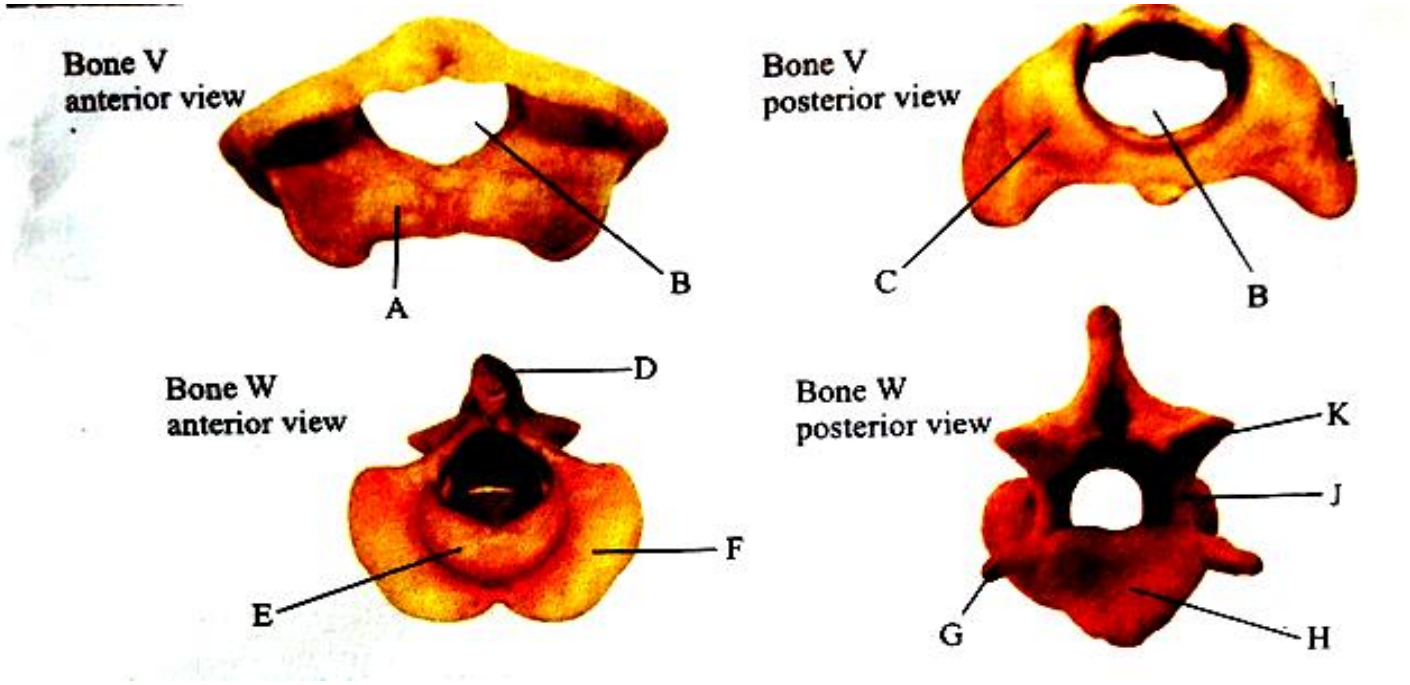
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f) State another observation that will be made as seedling **L** straightens **(1mk)**

……

……

3.The photographs below are specimens from the same animal of ***two*** different bones each shown in two views. Examine them.



a) Identify the two specimens **(2mks)**

Specimen **V**

.....

.....

Specimen **W**

.....

.....

b) Give four observable differences between bones V and W **(4mks)**

Bone V	**Bone W**

c) Name the structure that articulates with part labeled **A** **(1mk)**

.....

.....

d) State two roles of opening labeled **B** **(2mks)**

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.....

e) Name the part labelled **E** and state its role **(2mks)**

Name

.....

.....

Role

.....

.....

f) Which of the labelled part(s) are used for articulation with adjacent vertebra **(1mk)**

.....

.....

g) State a common role of the parts labelled **H** and **J** **(1mk)**

.....

.....

h) Which of the labeled part(s) is(are) used for muscle attachment **(1mk)**

.....

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.....

.....

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 3 CONFIDENTIAL

1. Specimen Q Ripe banana
2. Iodine Solution
3. Visking tubing
4. 100ml beaker
5. Thread
6. Scapel

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 3

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

Instructions to candidates

a) *Write your name, index number in the spaces provided above.*

b) *Answer **ALL** questions in in the spaces provided.*

c) *You are required to spend the first **15 minutes** of the **1 ¾ hours** reading the whole paper carefully before commencing your work.*

d) *This paper consists of **6** printed pages*

e) *Candidates should answer the questions in English*

FOR EXAMINER'S USE ONLY:

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	16	
2	11	
3	13	

TOTAL	**40**	

1. You are provided with a specimen labelled **Q**, use it to answer the questions that follow.

(a) **(i)** Sketch a drawing and label the specimen on the space provided. **(2 marks)**

(iii) Make a transverse section of the specimen and label. **(3 marks)**

(b) What type of fruit is specimen Q? **(1 mark)**

……

……

c) Slice off about $2cm^2$cube from the specimen. Peel it. Tie one end of the 8cm LONG transparent visking tubing provided. Place the banana cube and tie the other end to ENSURE THERE IS NO LEAKAGE AND BOTH ENDS OF THE TUBING. Rinse the outside of the tubing with water. Immerse the tubing with its content in 100ml beaker containing iodine solution. Allow standing for 20 minutes.

(i) Record your observations in the table below. **(4 marks)**

	Contents inside tubing	Iodine solution Outside tubing
Before the experiment		
After the experiment		

(ii) What was the physiological activity under test? **(1 mark)**

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(ii) Account for the results obtained in c (i) above. **(3 marks)**

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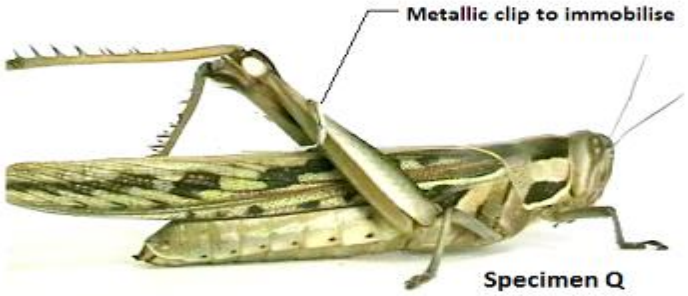
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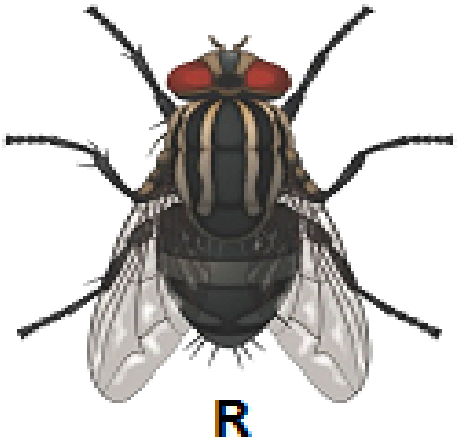
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2. You are provided with specimen **Q, R S T** and **U**. Study them to answer the questions below.

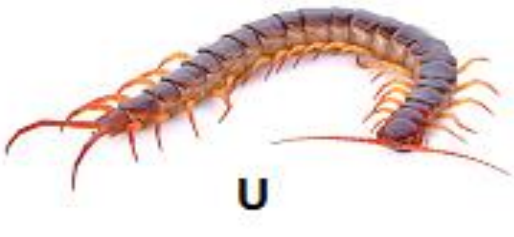












(a) Work the actual length of specimen **T,** given that the shatter resistant ruler measures **Q** from tip of mouth to tip of abdomen. **(3 marks)**

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(b) Aboy immobilised specimen **Q** and attempted to drawn and suffocate it in water by placing its head in water. Using observable features, explain why he couldn't succeed. **(2 marks)**

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(c) Use the features in order given below and construct a dichotomous key that can be used to identify the specimen above.

Wings, long or short hind limbs, number of legs, antenna. **(8 marks)**

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(d) State three ways in which specimen **Q** is adapted to evade its predators in its ecological niche.

(3 marks)

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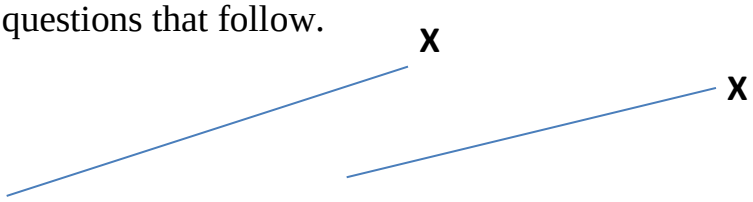
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3. You are provided with two photographs below of maize plant (*Zea mays*) taken from the school farm.Use them to answer the questions that follow.





photograph A



photograph B

(a) Classify the specimen into Division, Sub-division and Class where it belongs.

Division **(1 mark)**

.....

.....

.....

Sub-division **(1 mark)**

.....

.....

Class **(1 mark)**

.....

.....

b) Give **one** reason why you classified it into sub- division above. **(1 mark)**

.....

.....

(i) What type of leaf arrangement is shown in photograph **A** above. **(1 mark)**

.....

.....

(ii) Giving reasons, give the **term** used to describe the above flower based on the agent of pollination. **(1 mark)**

.....

.....

Reasons **(2 marks)**

.....

.....

.....

.....

iii) On the photographs, label where the pollen grain produced and where stigma is likely to be found respectively. **(2 marks)**

iv) With respect to floral arrangement, what term is used to describe maize plant? **(1 mark)**

.....

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.....

.....

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 4 CONFIDENTIAL

Each student will require the following:

i. 10ml of 10% sucrose solution labeled K

ii. Access to iodine solution
iii. 2 mls of Benedict solution
iv. Access to dilute HCL
v. Sodium Hydrogen Carbonate solution
vi. 2ml 10% Sodium Hydroxide
vii. 2ml 1% freshly prepared Copper Sulphate
viii. Source of heat

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 4

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

Instructions to candidates

Write your name and class in the spaces provided above.
Sign and write the date of examination in the spaces provided above.
*Answer **ALL** questions in the spaces provided.*
*Additional pages **MUST NOT** be inserted.*
Candidates will be penalized for incorrect spelling especially of technical terms and for use of slovenly language

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	12	
2	15	
3	13	
Total score	40	

1. You are provided with solution labeled **K**

(a) Using the reagents provided test for the food substances found in solution **K**. Record the food you have tested for, procedure observation and conclusion in the table below

(10mks)

Food substance	Procedure	Observation	Conclusion

(b)(i) Name an enzyme that may be required to digest the food substance found in solution **K** in a human being. **(1mk)**

.....

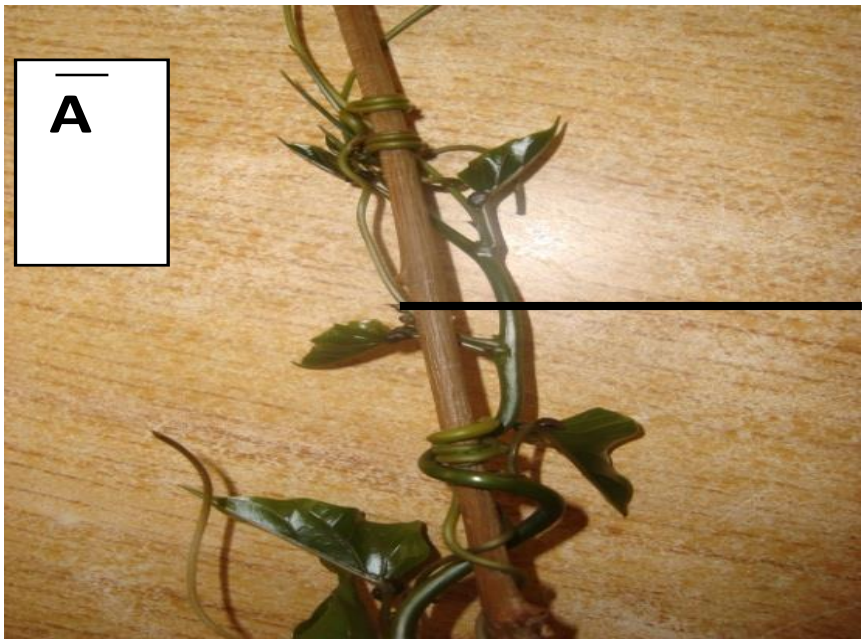
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(ii) State the name of the part of alimentary canal in which the enzyme named in **(b)(i)** above is found **(1mk)**

.....

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2. (a) Study photograph **A** below which shows a plant specimen and an associated sisal pole study and answer the questions that follow



(i) What name is given to the coiled part of the plant specimen shown in photograph**A**? **(1 mark)**

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.....

(ii) Name the type of response exhibited by the coiled part of the plant specimen in photograph **A** **(1 mark)**

.....

.....

(iii) Specify the stimulus responsible for the response named in **(a)(ii)** above **(1 mark)**

(iv) Explain how the response exhibited by the coiled part of the plant specimen in photograph **A** occurred **(3 marks)**

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(v) State the biological significance of the response described in **(iv)** above to the survival of the plant **(1 mark)**

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.....

(b) Study photographs **B1** and **B2** below carefully and answer the questions that follow.The part in **B2** was extracted from the specimen in**B1**





(i) Identify the agent of pollination of the specimen shown in the photographs above **(1mark)**

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.....

(ii) Give a reason for your answer in **(b)(i)** above **(1mark)**

.....

.....

(iii) Describe the pistil of specimen **B1** **(2 marks)**

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.....

(iv) What is the name given to the type of pistil found in specimen **B1**? **(1 mark)**

.....

.....

.....

(v) Describe the external features of the leaves of the plant from which specimen **B1** was obtained **(3marks)**

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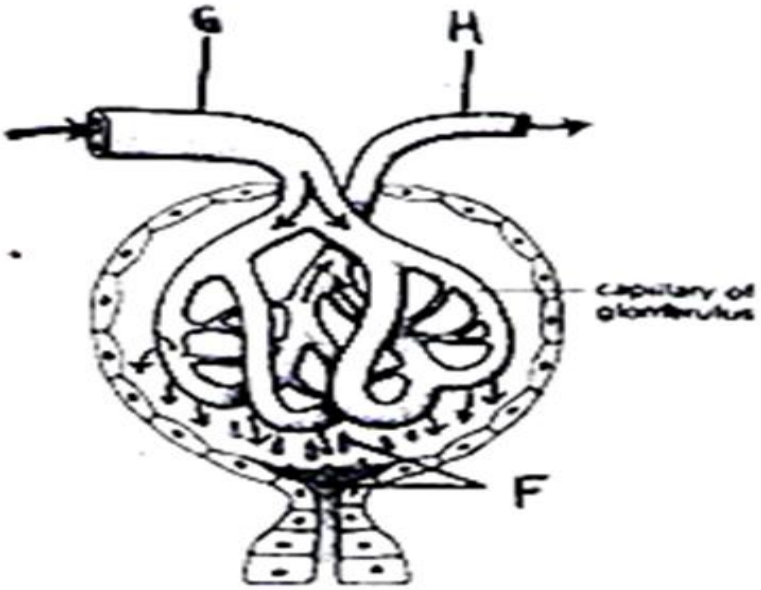
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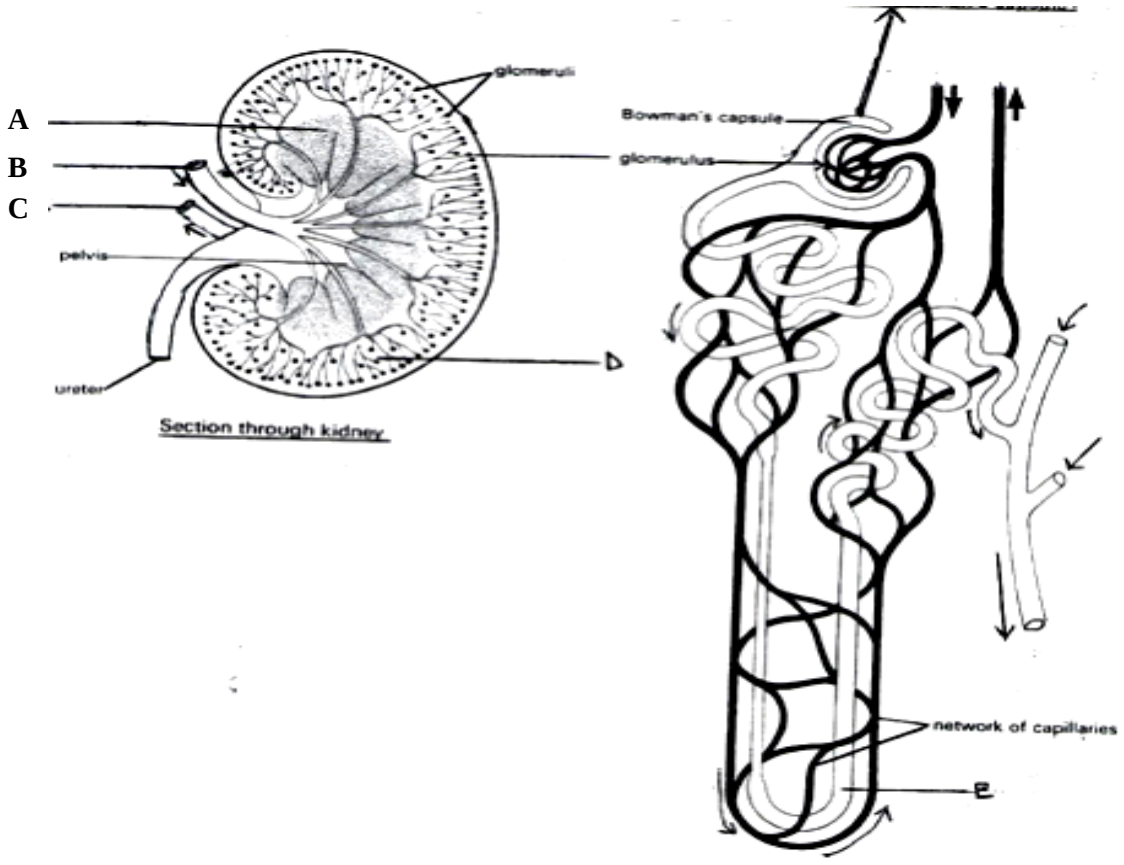
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3. The diagram below shows structures which occur in a mammalian kidney. Study the figure carefully and answer the questions that follow.





i) Name the parts marked **(2 marks)**

A

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……

D

……

……

ii) Identify the blood vessels labeled: **(4 marks)**

B

……

……

C.

……

……

G

……

……

H.

……

……

b) i) Name the filtrate labeled **F** **(1 mark)**

……

……

ii) Explain how the filtrate named in (b) (i) above is formed **(3 marks)**

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……

……

c) Explain the difference in structure E in a desert and a fresh water animal**.** **(2 marks)**

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……

……

d) Name the hormone which regulates reabsorption of sodium ions in the kidney tubules.

(1 mark)

……

……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 5 CONFIDENTIAL

REQUIREMENTS

Each candidate will require;

- 50ml of Solution W- Starch solution, prepared with warm water.
- Solid Q -5g of Diastase in a stoppered container
- 4 test tubes in a rack
- 4 Droppers
- 100ml plastic beaker
- 10ml measuring cylinder
- Test tube holder
- Spatula
- Three labels
- Means of timing(Wall clock/stop watch)

Access to

- Benedict's solution placed in a test tube with a dropper
- 1M Hydrochloric acid with dropper.
- Iodine solution with a dropper
- Source of heat

- ❖ Hot water bath maintained at 37^0C

NB// Question 2 and 3 Photos should be coloured

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 5

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES

- Write your name, Admission number and class in the spaces provided
- Sign and write the date of examination in the spaces provided above.
- Answer all questions in the spaces provided in the question paper.
- You are required to spend the first 15 minutes of first hours allowed for this paper reading the whole paper before commencing your work.
- Answers MUST be written on the spaces provided after each question.

- Candidates may be penalized for recording irrelevant information and incorrect spelling especially of technical terms.

FOR EXAMINERS USE ONLY

QUESTION	Max Score	Candidate Score
1	14	
2	15	
3	11	
TOTAL SCORE	40	

1.You are provided with solution W ,Solid Q, Iodine solution ,Benedict's solution, Hydrochloric acid and Water bath.

a)Using reagents provided carry out tests to determine the food substance present in solution W

Record the procedure ,observation and conclusion in the table below

Food test	Procedure	Observation	Conclusion

6mks

b)Label three test tubes as A, B and C. Place 3ml of Solution W into each test tube. Divide solid Q into three equal portions.

To the test tube A add one portion of solid Q and shake thoroughly

To the test tube B add the second portion of Solid Q shake thoroughly and heat to boil.

To the test tube C add the third portion of solid Q, followed by 8 drops of 2M hydrochloric acid and shake to mix.

Place the three set ups into a water bath maintained at 37^{o}c for 40 minutes.

Add equal amounts of Benedict's solution to each of three test tubes and heat to boil. Record your observation.

Set up **A** **(1mk)**

.....

.....

B **(1mk)**

.....

.....

C **(1mk)**

.....

.....

Account for your observations above **(3mks)**

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.....

.....

c) Name any other factor that affects the reaction above**.** **(1mk)**

……

……

d) Give a reason why temperature of the water bath was maintained at 37^{o}c **(1mk)**

……

……

2 .a) You are provided with Flower specimen **K**. Use it to answer the questions that follow



i) Name the type of gynoecium in the flower. **(1mk)**

……

……

ii) With a reason state the agent of pollination.

Agent of pollination **(1mk)**

……

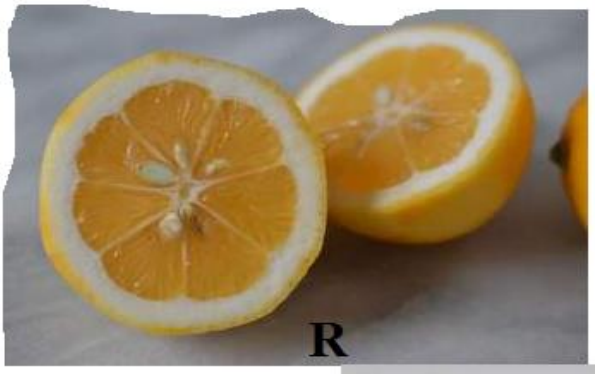
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Reason **(1mk)**

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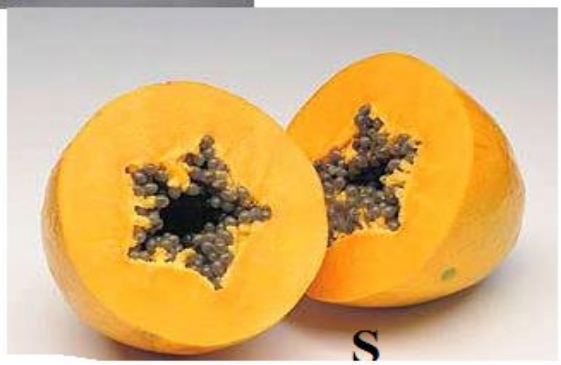
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b) The photographs labelled **Q, R**,and **S** are sections of some plant parts.





Q



(i)Name the type of placentation in the specimens shown in photographs **Q, R** and **S** .With Reasons **(6 marks)**

Fruit	**Placentation**	Reason
Q R S		

(ii) Giving a reason in each case, name the mode of dispersal of the specimen in photograph **Q** and **S** **(4marks)**

Q:

Mode

……

……

Reason

……

……

S:

Mode

……

……

Reason

……

……

iii) What type of fruit is **R .**Give a reason**.** **(2mks)**

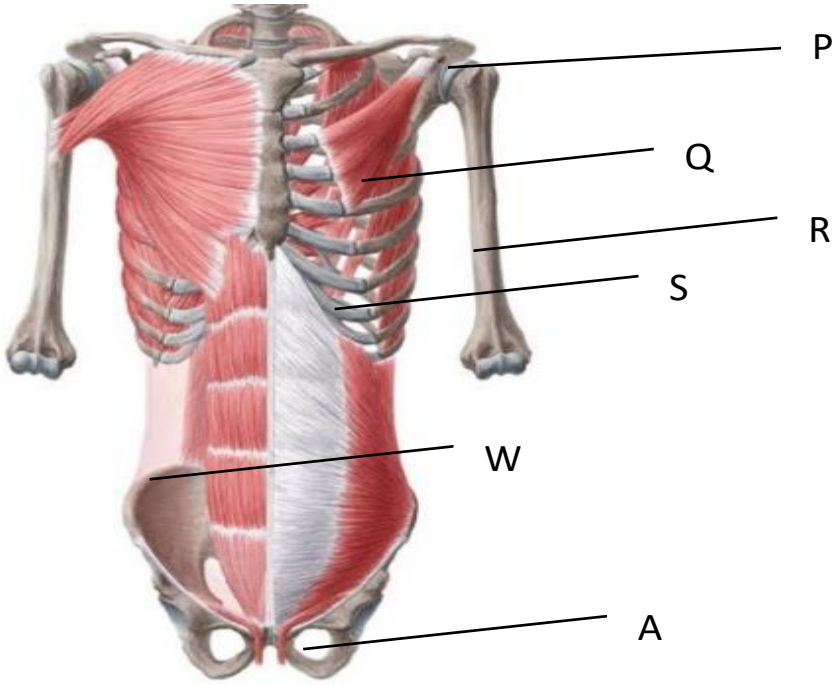
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4. The diagram below represents a section of human skeleton and muscles.



a)i) Name the parts labelled :

W **(1mk)**

……

……

S **(1mk)**

……

……

R **(1mk)**

……

……

Q **(1mk)**

……

……

ii) What is the significance of part **A** **(1mk)**

……

……

(iii) Describe the role of **Q** during inhalation. **(2mks)**

……

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……

……

(iv) Name the type of muscle on the diagram above. **(1mk)**

……

……

v)What type of joint is at P**.** **(1mk)**

……

……

b)Name the bone that articulate with R at:

i)Proximal end **(1mk)**

……

……

ii) Distal end **(1mk)**

……

……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 6 CONFIDENTIAL

INSTRUCTIONS TO SCHOOLS

The information contained in this paper is to enable the head of the school and the teacher in charge of Biology to make adequate preparations for this year's biology 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 teacher in charge of Biology should **NOT** perform any of the experiments in the same room as the candidates nor make the results of the experiments available to the candidates or give any other information related to the experiments to the candidates.

REQUIREMENTS

Each candidate will require the following:

- 4 test - tubes
- 4ml of solution D
- 4ml of solution E – Diastase solution 10%
- 4ml of Benedict's solution
- Means of labeling – 4 labels
- Water bath
- Iodine solution
- 4 Droppers
- Means of timing

Solution E

Prepare solution E by dissolving 5g of Enzyme diastase in 500ml distilled water for 125 students

Solution D

Prepare solution D by dissolving 5g of starch powder in 500ml distilled water for 125 students

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 6

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

Instructions to Candidates:

(a) *Write your name and Index Number in the spaces provided above.*

(b) *Sign and write the date of examination in the spaces provided above.*

(c) *Answer **all** questions in the spaces provided in this booklet.*

(d) ***This paper consists of 6 printed pages.***

(e) ***Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.***

(f) ***Candidates should answer the questions in English.***

FOR EXAMINERS USERS ONLY

Question	Maximum Score	Candidate's Score
1	13	
2	11	
3	16	

Total Score	**40**	

1. You are provided with 250ml beaker, four test tubes, solutions labeled D and E, Iodine and Benedict's solutions. Half fill the beaker with hot water provided to create a hot water bath.

(I) Label the four test tubes as follows:

(i) Test tube 1. **D + iodine**

(ii) Test tube 2. **D + E + iodine**

(iii) Test tube 3. **D + Benedict's solution**

(iv) Test tube 4. **D + E + Benedict's solution** (II)

Put $1cm^3$ of solution D in each of the four test tubes.

(III) To the **D + iodine** test tube, add one drop iodine solution and shake to mix.

(IV) To the **D + E + iodine** test tube, add $1cm^3$ of solution **E** and two drops of iodine solution

(V) To the **D + Benedict's solution** test tube, add $1cm^3$ of Benedict's solution and shake to mix

(VI) To the **D + E + Benedict's solution** test tube, add $1cm^3$ of solution **E** and $1cm^3$ Benedict's solution. Shake to mix.

(VII) Observe the changes in each of the four test tubes

(VIII) Put all the four test tubes in the hot water bath and observe carefully for about five minutes

a) Record the observations and conclusion for each of the four test tubes in the table below **(8marks)**

NO	TEST TUBE	OBSERVATION	CONCLUSION
1	**D + iodine**		
2	**D + E + iodine**		
3	**D + Benedict's solution**		

4	**D + E + Benedict's solution**		

b) What was the role of each of the following in the experiment?

(i) Solution **E** (**1mark)**

.....

.....

(ii) Hot water bath **(1mark)**

.....

.....

c) Give the identity of **E** in human beings **(1mark)**

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.....

d) Explain the observations made on the reagents tested with Benedict's solution **(2marks**)

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2. The photographs below show organisms that are closely related

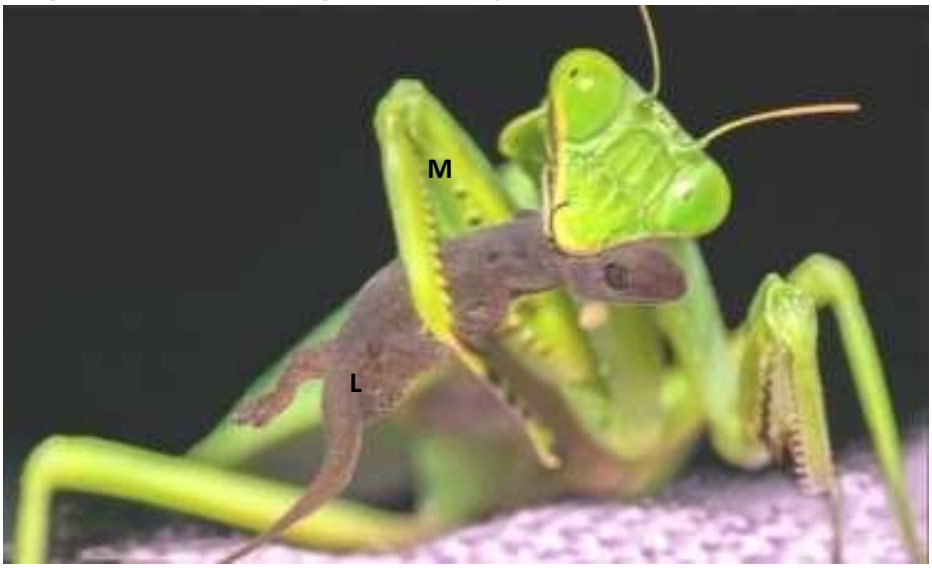


a) Identify the evidence for organic evolution exhibited by the two organisms above (1mark)

.....

.....

b) Observe the **two** organisms interacting in an ecosystem.



i) Identify which of the two animals **M** and **L** will have the least biomass **(1mark)**

.....

.....

ii) Give a reason for your answer in (b)(i) above **(1mark)**

.....

.....

c) Explain the concept of "Survival for the fittest" in relation to the organisms illustrated in the photograph**.** **(4marks)**

.....

.....

.....

.....

d) Explain **two** visible survival adaptive features for the organisms illustrated in the photograph **(4 mks)**

.....

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.....

.....

3. Study the photographs and answer the following questions.



PLATE 5



PLATE 6



PLATE 7

a) The photograph in Plate **5** shows the germination process in a species of legume.

i) Name the type of germination shown in the photograph**.** **(1mark)**

.....

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ii) Give a reason for your answer. **(1 mark)**

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.....

b) Other than germination the seedling have shown some responses.

i) Name ***two*** responses shown in the photograph. **(2 marks)**

.....

.....

.....

.....

ii) State ***one*** survival value of each of the response named above. **(2 mark)**

.....

.....

c) Examine the photograph in Plate **6** and Plate **7** which show different essential parts of a flower of a species on two different plants.

i) Name the flower parts shown in Plate **6** and Plate **7**. **(2 marks)**

Plate **6**.....

Plate 7 .....

b) **(i)** Name the phenomenon described in the statement above. **(1 mark)**

.....

.....

ii) Explain the significance of the phenomena stated in (a)(i) above. **(2 mark)**

.....

.....

c) **(i)** State the mode of pollination of the flower shown in the photograph**.** **(1 mark)**

.....

.....

ii) Give a reason for your answer. **(1 mark)**

.....

.....

d) **(i)** State the type of pollination of the flower shown in the photograph. **(1 mark)**

.....

.....

(ii) Give ***two*** reasons for your answer. (**2 marks)**

.....

.....

.....

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 7 CONFIDENTIAL

Candidates require the following in the working bench

QUESTION 1

- **a.** Mixture J: Solution containing a mixture of sucrose and vitamin C.
- **b.** Benedict's solution,
- **c.** Dilute hydrochloric acid solution.
- **d.** Iodine solution
- **e.** Dichlorophenol – indophenol (DCPIP) solution,
- **f.** Sodium hydrogen – carbonate,
- **g.** Means of heating,
- **h.** 5 test tubes,
- **i.** Test tube holder
- **j.** Test tube rack

QUESTION 2

- **a.** Photograph Q: complete hibiscus flower (Each candidate should be provided with a real flower)
- **b.** Photograph Q: Half flower of hibiscus
- **c.** Scalpel / razor blade

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 7

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES

- *Answer all the questions in the spaces provided.*
- *You are required to spend the first **15** minutes of **1** ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.*
- *Candidates may be penalized for recording irrelevant information and for incorrect spelling especially of technical terms.*

FOR EXAMINER'S USE ONLY

Question	Max Score	Candidate's Score
1	13	
2	13	

3	**14**	
TOTAL	**40**	

1. You are provided with an unknown mixture labelled J
You are also provided with Benedict's solution, dilute hydrochloric acid solution, iodine solution, Dichlorophenol-Indophenol (DCPIP) solution. Sodium hydrogen-carbonate solution, means of heating, test tubes, test tube holder and a test tube rack.

a) Using the reagent provided only, test for the food substances in mixture J. Record in the table below the chemical test, the procedure of the test, your observations and conclusions. **(8mks)**

Chemical test	**Procedure**	**Observations**	**Conclusions**

b) Which of the components of mixture J does not undergo digestion in the mammalian digestive system? **(1mk)**

.....

.....

c) i)Name a deficiency disease that may result from a deficiency of the component identified in (b) above. **(1mk)**

.....

.....

d) Name a common carbohydrate that could be present in mixture J. **(1mk)**

.....

.....

e) State the role of hydrochloric acid and sodium hydrogen carbonate in the experiment. **(2mks)**

Hydrochloric Acid

.....

.....

Sodium Hydrogen Carbonate

.....

.....

2. The photographs below show a flower specimen. Study it carefully and use to answer the questions that follow.



a) On the photograph, label the following parts **(3mks)**

i. Stigma
ii. Style
iii. Staminal tube

b) i) Classify the plant from which the flower was picked into the taxonomic groups listed below. **(4mks)**

Kingdom

.....

.....

Division

.....

.....

Sub division

.....

.....

Class

.....

.....

ii) Name three observable features from the photograph of the class you named in **(a) (i)** above. **(3mks)**

.....

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.....

.....

c) Suggest the pollination agent of this flower. Give reasons for your answer.

Pollinating agent **(1mk)**

.....

.....

Reasons **(2mks)**

.....

.....

3. Below are photographs of two specimens, **J** and **K.** Both of them belong to the same Phylum and Class. Observe them carefully before you answer the questions that follow.





a) Name the class to which **J** and **K** belong and support your answer with two reasons.

Class **(1mk)**

.....

.....

Reasons **(2mks)**

.....

.....

.....

.....

b. Suggest why the transport fluid in **J** and **K** has no haemoglobin. **(2mks)**

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c. The actual length of specimen **K** is 8cm, given that both **J** and **K** are under the same magnification, determine the actual length of **J** **(3mks)**

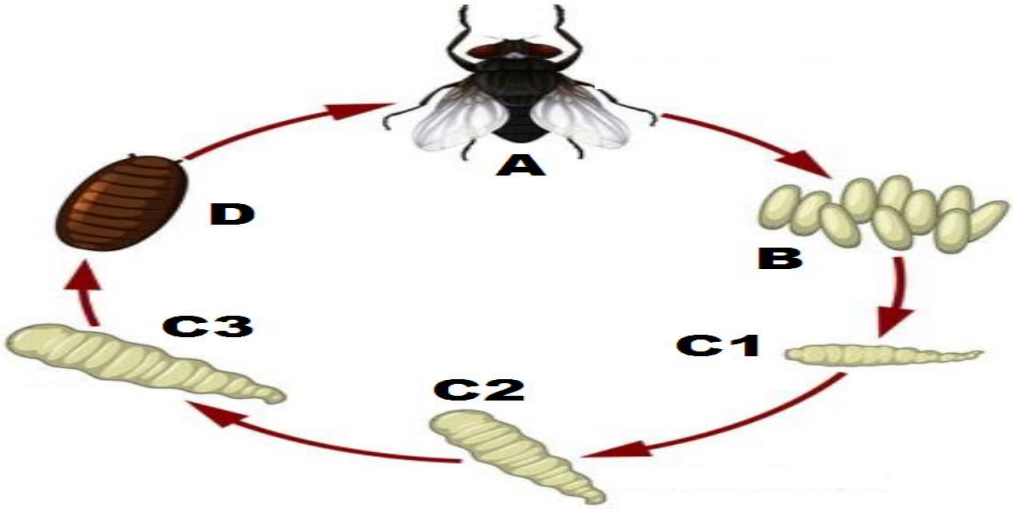
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d. Below is a diagram showing the life cycle of specimen J.



i. Identify the stage labeled **D**. **(1mk)**

……

……

ii. Name the hormone responsible for the change from **D** to **A**. **(1mk)**

……

……

iii. Explain the differences in the change from **C2** to **C3** and from **C3** to **D.** **(2mk)**

C2 to C3

……

……

C3 to D

……

……

iv. State the importance of the process illustrated above in the life cycle of the organism **(2mks)**

……

……

……

……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 8 CONFIDENTIAL

1. **Specimen P** – soaked (overnight) Maize seed.
2. **Specimen Q** – soaked (overnight) Bean seed.
3. A white tile.
4. Scalpel.
5. Mortar and pestle.
6. Distilled water.
7. Two test-tubes on a test-tube rack.
8. Iodine solution.
9. Sodium hydroxide.
10. Copper(II) sulphate.

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 8

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES

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.

FOR EXAMINERS USE ONLY.

Question	**Maximum score**	**Candidates score**
1	17	
2	09	
3	14	
Total score	**40**	

1. You are provided with specimen **P** and **Q.** Examine them carefully and answer the questions that follow.

(a). State three observable differences between **P** and **Q.** **(3mks)**

Specimen P	Specimen Q

(b) Identify the parts of the flower from which specimen **P** and **Q** developed**.** **(2mks)**

P

.....

.....

Q

.....

.....

(c i). Make a longitudinal section of specimen P. Draw a well-labelled diagram of one half with all its Contents intact. **(4mks)**

(ii). State the functions of any two structures in (c) (i) above. (**2mks)**

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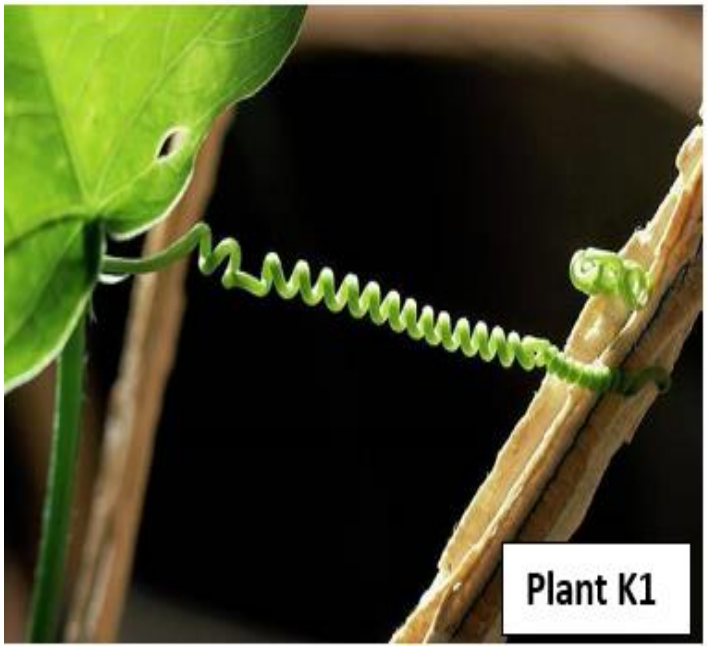
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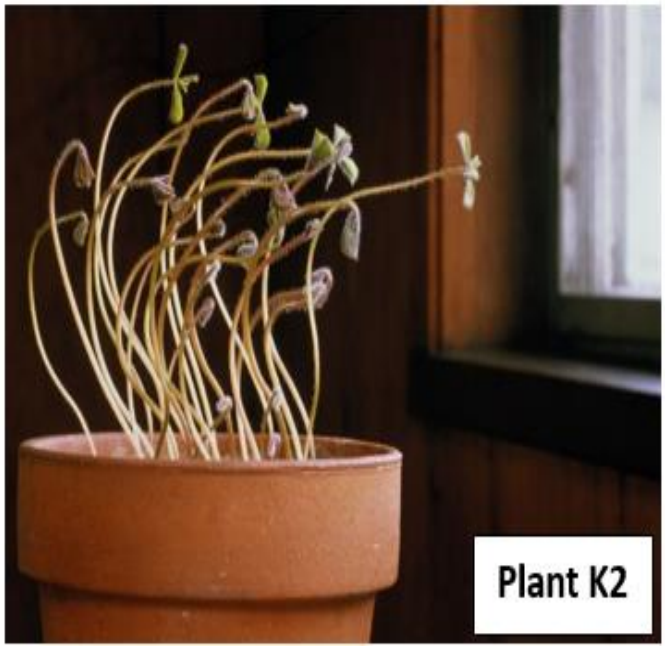
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(d). Using a mortar and pestle crush specimen Q, add 5ml distilled water to make a **solution Q** and carry out appropriate tests using the reagents provided. **(6mks)**

Test	Procedure	Observation	Conclusion

2. Study the photos below.





a) Name:-

i) The stimulus operating in **Plant K1.** **(1mk)**

……

……

ii) The type of response being investigated in **Plant K2.** **(1mk)**

……

……

iii) Suggest a control set up for **Plant K2** investigation. **(1mk)**

……

……

b) Describe the role of auxins in the response exhibited by **Plant K1.** **(4mks)**

……

……

……

……

c) What is the biological value of the tropisms evident in: -

i) Plant K1 **(1mk)**

……

……

ii) Plant K2 **(1mk)**

……

……

3. Below are photos of of a certain arthropod at different stages of its life cycle.



a) Identify the stage of the life cycle represented by organism **S**. **(1mk)**

……

……

b i) Name the stage that immediately preceed and succeed organism S in the life cycle. **(2mks)**

Preceeding stage

……

……

Succeeding stage.

……

……

ii) What name is given to the complete life cycle of the arthropod? **(1mk)**

……

……

c) Name the gaseous exchange system of orgaism **S**. Give a visible featuret that supports your answer. **(2mks)**

.....

.....

.....

.....

d i) What type of food does organisms **S** feed on? Give a reason to support your answer. **(2mks)**

.....

.....

ii) State the significance of stage **U** in the life cycle of the beetle**.** **(2mks)**

.....

.....

.....

iii) How is specimen T adapted to locomotion in its habitat ? **(2mks)**

.....

.....

.....

e) State the role of the following in the life cycle of the arthropods. **(2mks)**

i) Juvinile hormone.

.....

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ii) Moulting stimulating hormone.

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.....

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 9 CONFIDENTIAL

INSTRUCTIONS TO SCHOOLS

The information contained in this paper is to enable the Head of the school and the teacher in charge of Biology to make adequate preparations for the Biology 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 r each the candidate either directly of indirectly.

The teacher in charge of Biology should NOT perform any of the experiments or give any information related to these instructions to the candidates.

Each student will require:

- 80ml of iodine solution in a 100ml beaker
- 8cm visking tubing
- 2 pieces of strong cotton thread 20cm long
- Means of timing/wall clock
- 10ml measuring cylinder
- 100ml water in 250ml beaker
- 10ml of 10% starch solution labelled X

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 9

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES

- Write your name and index number index the spaces provided
- 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.
- This paper has three questions. Students should check the question paper to ascertain that all the papers are printed as indicated and that no questions are missing.

FOR EXAMINER'S USE ONLY

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1	13	
2	15	
3	12	

TOTAL SCORE	**40**	

1. You are provided with iodine solution visking tubing, a beaker and a solution labelled X. Tie one end of the tubing tightly using the thread provided.

Measure 5cm3 of solution X And pout it into t h e visking tubing. Tie the other end of the tubing tightly. Ensure there is no leakage.

Rinse the outside of the tubing with distilled water and immerse it with its contents in a beaker containing iodine solution.

Allow it to stand for 15 minutes.

a) i)) Record your observation at the beginning and end of the experiment in the table below. **(4mks)**

Experimental set up	**Solution X inside the tubing**	**Iodine solution outside the tubing**
Beginning of experiment		
End of experiment		

ii) What was the identity of solution X. (1mk)

.....

.....

iii) Suggest the nature of visking tube. (1mk)

.....

.....

iv) Account for the results obtained in a(i) above. (4mks)

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b) i) Which physiological process was being investigated in this experiment? **(1mk)**

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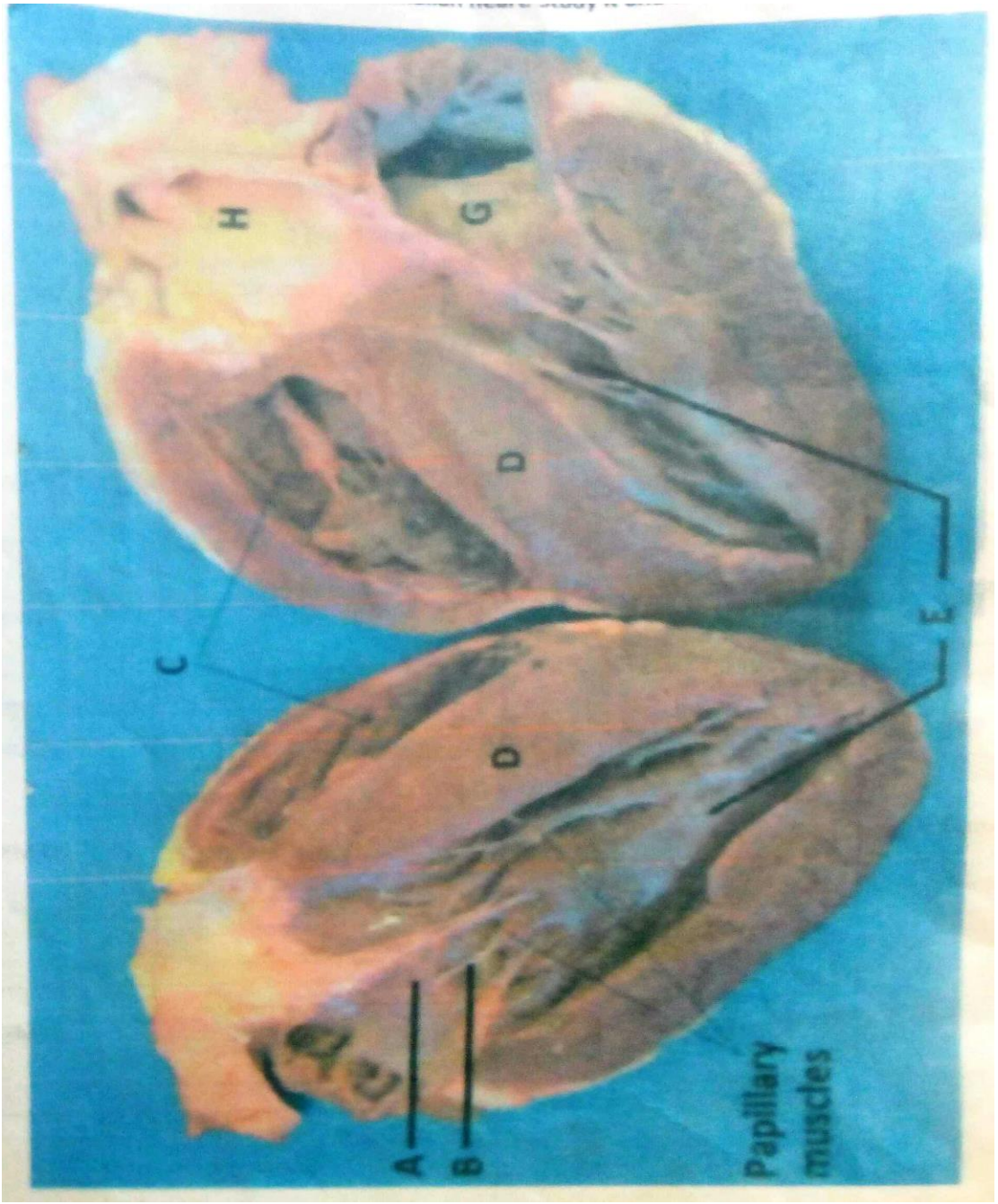
ii) State two factors which affect the process being investigated. **(2mks)**

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……

The photograph below is of a mammalian heart. Study it and answer the questions that follow.



a) Name the parts labelled **D** and **F.** **2mks**

D:

……

……

E:

……

……

b) State the role of part **D** **(1mk)**

……

……

c) Account for the structural differences between the parts marked **C and E.** **(3mks)**

……

……

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……

d) State the function of

i) Valve **A** **(1mk)**

……

……

ii) Part **B** **(1mk)**

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……

e) i) Name the part marked **G**. **(1mk)**

……

……

ii) Account for the structural differences between the parts marked **G** and **E**. **(3mks)**

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……

f) i) Name the blood vessel marked **M** **(1mk)**

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.....

ii) State two defects of the circulatory system. **(2mks)**

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2. You are provided with three sets of seedlings, labelled Set A_1, set A_2 and Set B. Examine them and use them to answer the questions that follow.



i) Name the phenomenon exhibited by seedlings in set A_1. **(1mk)**

……

……

ii) Give a reason why plants exhibit the phenomenon named in (i) above. **(1mk)**

……

……

iii) Name the response exhibited by the seedlings in Set B. **(1mk)**

……

……

iv) Explain how the response named in (iii) above occurred. **(3mks)**

……

……

……

……

v) State four differences between seedlings in set A_1 and A_2 **(4mks)**

Set A_1	**Set A_2**

iv) State the conditions under which th seedlings in set A1 and A2 were grown. **(2mks)**

Set A_1

……

……

Set A_2

……

……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PP3 SERIES 1 TRIAL 10 CONFIDENTIAL

All candidates to be supplied with:

1. Pestle and mortar
2. Specimen Q: LIVER
3. Specimen R : Banana/ raw :3 students can share 1
4. Measuring cylinder
5. Ruler
6. 20ml Hydrogen peroxide (solution X)
7. Source of heat
8. 2 Boiling tubes
9. 4 test tubes
10. Distilled water
11. Labels
12. Stop watch

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

TOP STUDENT KCSE PREDICTIONS

BIOLOGY PAPER 3 SERIES 1 TRIAL 10

Kenya Certificate of Secondary Exams

TIME: (1¾ HOURS)

INSTRUCTIONS TO CANDIDATES

- Answer all the questions in the spaces provided.
- You are required to spend the first **15** minutes of **1** ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Candidates may be penalized for recording irrelevant information and for incorrect spelling especially of technical terms.

FOR EXAMINER'S USE ONLY

Question	Max Score	Candidate's Score
1	12	
2	13	
3	15	
TOTAL	40	

1. You are provided with a nutritional supplement labelled S, distilled water and a boiling tube. Put about 6ml of the distilled water in the boiling tube and add the nutritional tablet to dissolve it. Use the reagents provided to find out the food substances present in the tablet. **(12 mks)**

Food substance	Procedure	Observation	Conclusion

2. a) (i) You are provided with a pestle, mortar, scapel, **specimen Q** and **R**. Cut from each a cube, each measuring 1cm by 1cm. put them each in a different test tube having 10mls of solution **X**. Record the observations in the table below? **(2 marks)**

Specimen	Observation
Specimen **Q**	
Specimen **R**	

(**ii)** Account for the observations in the experiment involving specimen **Q** and **R**? **(2 marks)**

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.....

b) i) Using the remaining portion of **specimen Q**, Cut 2 other pieces measuring 1cm by 1cm ,Crush them separately to form a paste and put them in boiling tubes labelled **A** and **B**.

To the paste in boiling tube labelled **A**, add 5mls of solution **X**. Record the observation in the table below.

To the paste in boiling tube labeled **B** add 10mls of distilled water and boil for 5 minutes then allow it cool then add 5mls of solution **X**. Record the observation in the table below. **(2 marks)**

BOILING TUBE	OBSERVATION
A	
B	

ii) Account for the observations in the experiment involving boiling tube **A** and **B** **(4 marks)**

Boiling tube **A**

……

……

Boiling tube **B**

……

……

iii) Name the biological substance being investigated and its significance to the living tissues **(2 marks)**

Biological substance

……

……

Significance

……

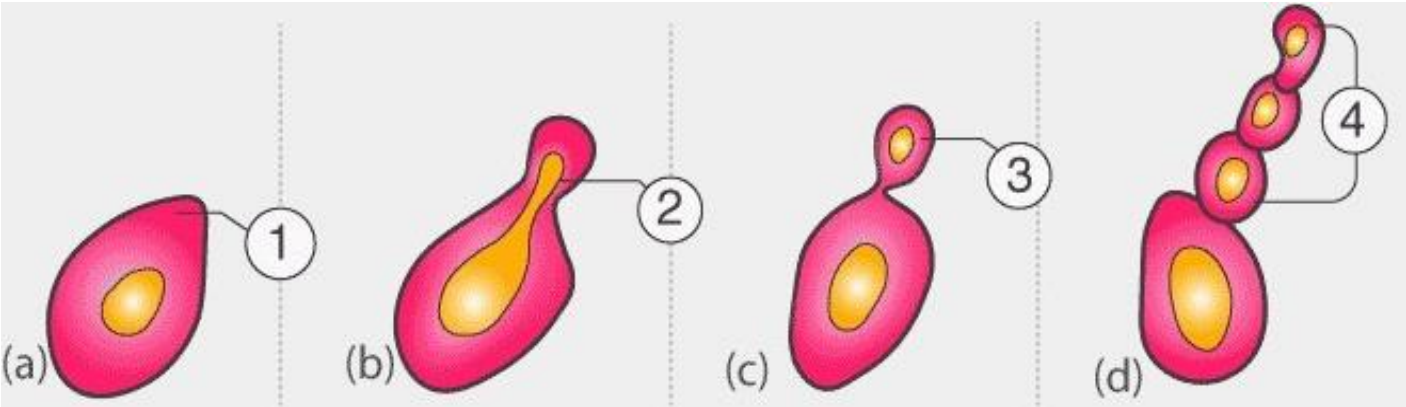
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iv) Name the factor being investigated in question **2(b)**above **(1mark)**

……

……

3. The diagrams below show a method of reproduction.



(a). Name the mode of reproduction above and give an example of organism where it occurs .

(2mks)

……

……

(b). Briefly explain how the process occurs **(4mks)**

……

……

……

……

……

(c) Study the following photograph and answer the questions that follow



(d) Describe the features of the above photograph with respect to the following **(3mks)**

(i) Androecium

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.....

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.....

(ii) Gynoecium **(3mks)**

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.....

(e) (i) Suggest the agent of pollination of the flower **(1mk)**

.....

.....

(ii) Explain how it is adapted to pollination agent you have named in **(b)(i)**above **(2mks)**

.....

.....

.....

.....



'an investment of knowledge pays'

For marking schemes,prefer calling Mdm Mariam:0746711892

Other available resources are;

- well summarised primary and secondary notes
- F1-F4 termly exams
- primary exams
- KCSE past papers
- KCPE past papers
- Mocks
- lesson plans
- schemes of work

'an investment of knowledge pays

The following KASNEB notes are available;

- ATD
- CPA
- CS
- CIFA

Call Mdm.Mariam:0746711892 to acquire them

