BIOLOGY PP3 MOCKS

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(SERIES 1)

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BIOLOGY MOCKS

SERIES 1 TRIAL 1

BIOLOGY PAPER 3 CONFIDENTIAL

Each candidate will require the following:

- 15ml of 5% Bromothymol Blue.
- Lime water (calcium hydroxide) labeled solution X.
- A drinking straw.
- 2 test tubes.
- 10ml measuring cylinder.
- Boiling tube.
- Large bean seed soaked overnight labeled R1.
- Large maize grain soaked overnight labeled R2.
- Scalpel or razor blade.
- Iodine solution provided with a dropper.
- Dilute hydrochloric acid.
- Dilute sodium hydroxide.
- Hand lens.
- Distilled water provided in a wash bottle.
- 2 droppers.

NB: Bromothymol blue stock solution is 0.04g in 6 – 4ml N/100 NaOH, 73.6ml distilled water and 20ml absolute ethanol 5% Bromothymol blue is made by adding 95ml of distilled water to 5ml of stock solution.

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BIOLOGY MOCKS

SERIES 1 TRIAL 1 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with the following:

- 25ml Bromothymol blue.
- Solution **X.**
- A drinking straw.
- 2 test tubes.
- 10ml measuring cylinder.
- A boiling tube.
- Dilute hydrochloric acid.
- Dilute sodium hydroxide.

(a) Place 2ml of Bromothymol Blue (B.T.B) in a clean test tube. Add dilute hydrochloric acid drop by drop and shake after each drop till there is a permanent colour change.

(i) State the resulting colour. **(1 mark)**

……

……

(ii) To the mixture obtained above, now add sodium hydroxide solution drop by drop until there is a colour change. Record your observation. **(1 mark)**

……

……

(iii) From your observations in **(a)(i)** and **(a)(ii)** above what is the nature of Bromothymol blue. **(1 mark)**

……

……

(b) Place 10ml of fresh Bromothymol blue in a boiling tube. Using the drinking straw, bubble air through the bromothymol blue until there occur colour change.

(i) Record your observation. **(1 mark)**

……
……

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

……
……

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

(i) Record your observation. **(1 mark)**

……
……

(ii) Suggest the identity of solution **X.** **(1 mark)**

……
……

(iii) Suggest the identity of the gas that gave rise to the observation above. **(1 mark)**

……
……

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

……
……

(ii) Write down a word equation for the process named in d(i) above. **(2 marks)**

……
……

(iii) What is the importance of the identified process in cells of living organisms? **(1 Mark)**

……
……

2. Study the photographs and answer the following questions. **(1 mark)**

PLATE 5

PLATE 6

PLATES 7

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

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

……

……

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

……

……

(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. **(1 mark)**

……

……

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

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

……

……

……

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

……

……

(ii) Explain the significance of the phenomena stated in (a)(i) above. **(1 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)**

……

……

……

3. The photographs in Plate **J**, **K** and **L** shows the anterior part of two different animals, Plate **L** shows the longitudinal dissection of Plate **K**. Examine the photographs and answer the questions below.

PLATE J

PLATE K

PLATE L

(a)(i) State the class to which the animal organ in Plate **J** belongs. **(1 mark)**

……

……

(ii) State the habitat of the animal. **(1 mark)**

……

……

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

……

……

(b)(i) Name the organ shown in the photograph in Plate **J**. **(1 mark)**

……

……

(ii) State the function of the organ named above **(i).** **(1 mark)**

……

……

(iii) Name the structure that protects the organ named in (b(i) above from mechanical damage **.** **(1 mark)**

……

……

(iv) From observable features only explain three adaptation of the organ to its function. **(3 marks)**

……

……

……

(c) (i) Identify the structure in the photograph Plate **K** and **L**. **(1 mark)**

……

……

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

……

……

(iii) Using observable features only state three adaptations of the structure to its functions. **(3 marks)**

……

……

……

……

BIOLOGY MOCKS

SERIES 1 TRIAL 2

BIOLOGY PAPER 3 CONFIDENTIAL

1. The photographs must be coloured.
2. Each student to be provided with a ripe tomato labeled as specimen **K.**
   - a small beaker
   - a scapel
   - a dropper
   - at least 3 test tubes
   - access to; Iodine solution
     Benedict's solution
     DCPIP
     Source of heat and a test tube holder.

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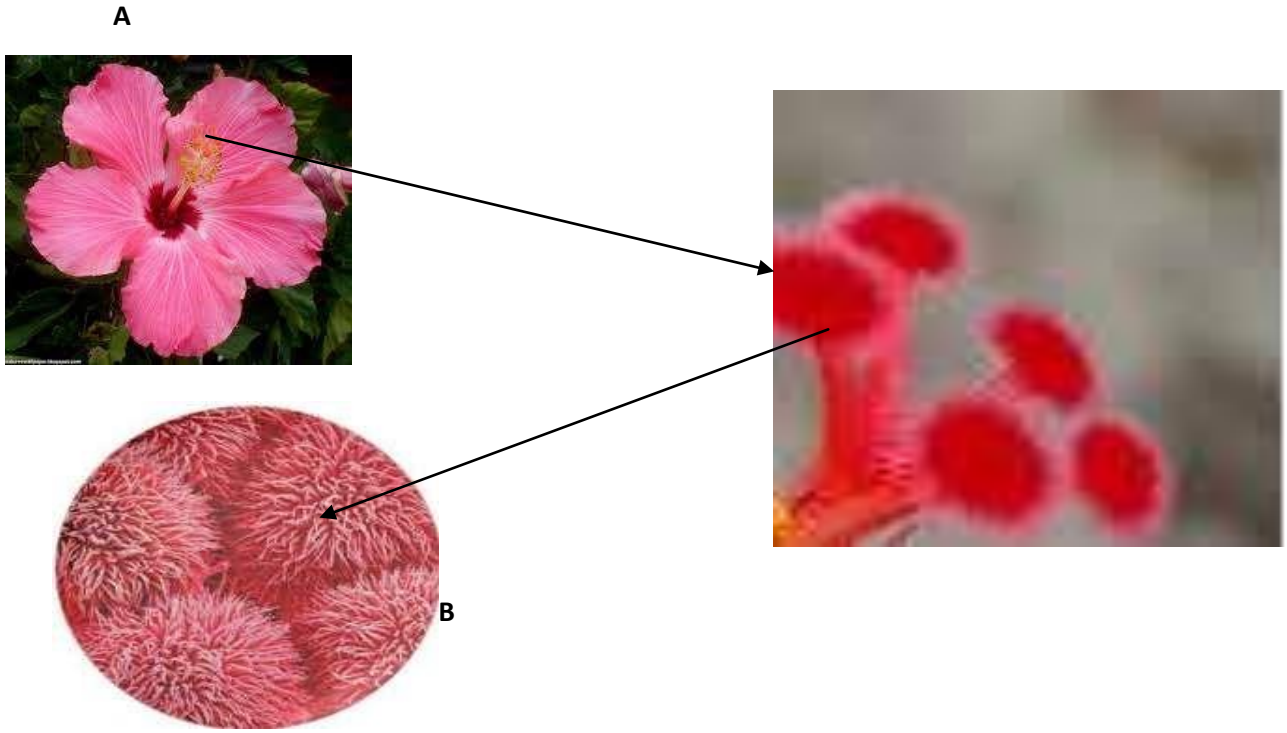
BIOLOGY MOCKS

SERIES 1 TRIAL 2 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1.



a) Name the sub-division of the plant from which the photo was taken. **(1 mark)**

……

……

b) Using observable features on the photograph give reasons for your answer in **(a)** above.

(2 marks)

……

……

c) Name the agent of pollination for the flower in the photograph **(1 mark)**

……
……

d) State three observations on the photograph that supports your answer in **(c)** above.

(3 marks)

……
……
……
……

e) Name the class of the plant from which the photo was taken. **(1 mark)**

……
……

f) Using observable features on the photograph, give three reasons for your answer in **(e)** above. **(3 marks)**

……
……
……
……

g) Give two adaptations of the part labeled B to its pollination function. **(2 marks)**

2.

Y

(i) To which phylum does organisms **x,y** and **z** belong to. **(1 mark)**

……

……

(ii) Name the classes to which **X, Y** and **Z** belongs to. **(3 marks)**

……

……

……

……

(iii) Give two important economic roles of specimen **Y**. **(2 marks)**

……

……

……

(iv) Give three harmful effects of specimen **X** to animals. **(3 marks)**

……

……

……

……

(v) With reasons identify two modes of locomotion of specimen **Y** . **(4 marks)**

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……

……

3. (i) What part of plant is specimen **K?** **(1mark)**

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……

(ii) Give a reason for your answer in **3(i)** above. **(1mark)**

……
……

(iii) Make a cross section of specimen **K**. Draw and label the parts. **(3marks)**

……
……
……
……

(iv) State the type of placentation in specimen **K.** **(1mark)**

……
……

(v) Name the agent of dispersal of specimen **K** and give a reason for your answer. **(2marks)**

……
……
……

(vi) Squeeze the juice from specimen **K**. Using the reagents provided, carry out food tests. **(6marks)**

FOOD/TEST	PROCEDURE	OBSERVATIONS	CONCLUSION

BIOLOGY MOCKS

SERIES 1 TRIAL 3

BIOLOGY PAPER 3 CONFIDENTIAL

Each candidate should be provided with the following items.

- 80 ml of iodine solution.
- 8 cm visking tubing.
- 2 pieces of strong cotton thread 20 cm long.
- 100ml beaker (glass or plastic)
- Means of timing. A wall clock will be appropriate.
- 10ml measuring cylinder.
- 100ml water is 250ml beaker.
- A ruler with mm marking.
- Medium size semi-ripe tomato labelled specimen P.
- 10ml of 10% starch solution labelled X.
- Scalpel.

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BIOLOGY MOCKS

SERIES 1 TRIAL 3 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with specimen P. Make a longitudinal section.

(a) (i) Draw and label one of the cut surface of the specimen. **(4 Marks)**

(ii) Work out the magnification of your drawing. **(1 Mark)**

……

……

(b) (i) What type of fruit is specimen P? **(1 Mark)**

……

……

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

……

……

(c) (i) Suggest the type of placentation found in specimen P. **(1 Mark)**

……

……

(ii) Give one reason for your answer. **(1 Mark)**

……

……

(d) (i) Name the mode of dispersal of the specimen. **(1 Mark)**

……
……

(ii) State two ways in which specimen P is adapted to be dispersed by the mode named in **(i)** **(4 marks)**

……
……
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……

2. You are provided with iodine solution, visking tubing, a beaker and a solution labelled X.

Tie one end of the tubing provided with a t1hread tightly. Measure 5ml of solution X. Pour 5ml of solution X into the 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 20 minutes.

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

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. **(1 Mark)**

……
……

(iii) Suggest the nature of visking tube. **(1 Mark)**

……
……

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

……
……
……
……

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

……
……

(ii) State two factors which affects the process being investigated **(2 Marks)**

……
……
……
……

3. You have been provided with photographs of specimens labelled Q1, Q2 and Q3. Examine them.

a) By using observable features only, state the phylum and class to which the specimens belong. By using the three specimens, give reasons for each case.

(a) Phylum **(1 Mark)**

……

……

Reasons **(3 marks)**

……

……

……

……

(b) Class **(1 mark)**

……

……

Reasons **(3 marks)**

……

……

……

……

(c) Using observable features only, give three differences between specimen **Q_1** and **Q_3.** **(2 Marks)**

……

……

……

(d) **(i)** Apart from locomotion, state the other role of the hind limbs of specimen Q_1**.(1 Mark)**

……

……

(ii) How are the hind limbs of specimen Q1 adapted to perform role named in **d(i)** above. **(2 Marks)**

……

……

……

BIOLOGY MOCKS

SERIES 1 TRIAL 4

BIOLOGY PAPER 3 CONFIDENTIAL

Provide each candidate with:-

Solution L (Milk)

- Filter Paper
- Funnel
- 100ml Beaker
- 2 Test Tubes
- Bench solutions
- Iodine solution
- Copper (II) Sulphate
- Sodium Hydroxide

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BIOLOGY MOCKS

SERIES 1 TRIAL 4 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

SECTION A (40 MARKS)

Answer all questions in this section in the spaces provided.

1. You are provided with a food sample labelled D in solution form. Using the reagents provided, carry out tests to identify the food substances in the food sample. (12mks)

FOOD SUBSTANCE	**PROCEDURE**	**OBSERVATION**	**CONCLUSION**
Proteins			
Non-Reducing Sugar			
Starch			

2. You are provided with the specimen labelled **E.**Examine it carefully and answer the questions that follow.

(i) Name the class of the plant from which the specimen **E** was obtained. **(1mk)**

……

……

(ii) Using observable features only, name ***three*** reasons for your answer in (i) above. **(3mks)**

……

……

(iii) Name the agent of pollination for the flowers of specimen E. **(1mk)**

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……

(iv) State ***four*** observations on the specimen E that support the answer in (iii) above. **(4mks)**

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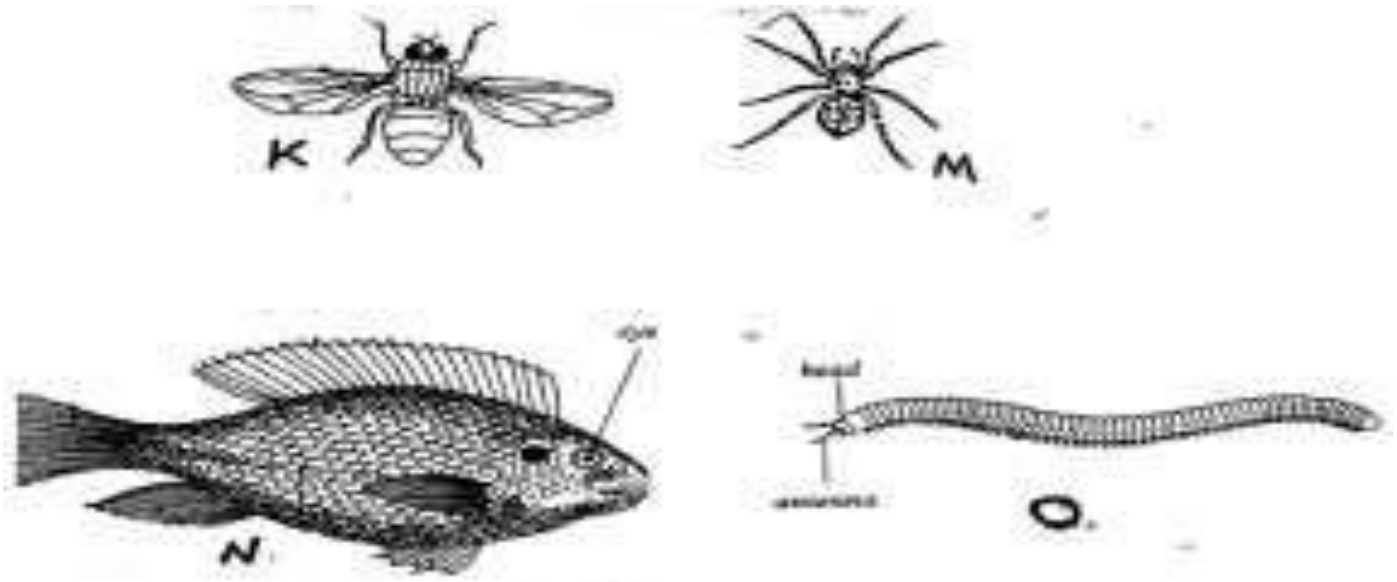
……

……

……

(v) Draw and label the pistil of specimen **E.** **(4mks)**

3. The photographs below represent different types of animals. Study them carefully and answer the questions that follow.



(a) State **two** observable differences between **K** and **M.** **(2mks)**

……

……

(b) Classify specimen M into the following taxa giving reasons for each case.

(i) Phylum **(1mk)**

……
……
Reasons **(3mks)**
……
……
……
……
(ii) Class (**1mk)**
……
……
Reasons **(3mks)**
……
……
……
……
(d) Name the type of skeleton found in the specimen O. **(1mk)**
……
……
(e) (i) Name the class to which the specimen N belongs. **(1mk)**
……
……
(ii) Give **<u>three</u>** reasons for your answer in (d) (i) above. **(3mks)**
……
……
……
……

BIOLOGY MOCKS

SERIES 1 TRIAL 5

BIOLOGY PAPER 3 CONFIDENTIAL

The teacher in-charge of Biology to provide the following specimens and apparatus to each candidate.

1. A piece of Lung (about 20 cm^3) obtained from a mammal like a cow or goat labeled specimen **T.**

Provide specimen **T** on a Petri-dish or on a flat surface.

2. A gill obtained from a bony fish like Tilapia labeled specimen **R.**
3. Partially unripe pawpaw (small size) labeled specimen K.
4. Means of cutting e.g. sharp Knife/sharp scalpel/surgical blade.
5. Tap water labeled solution **X**. (Provide 100 ml for each candidate)
6. Concentrated salt solution labeled solution **Y**. (Provide 100ml per candidate)
7. A transparent ruler.
8. A pair of forceps.

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BIOLOGY MOCKS

SERIES 1 TRIAL 5 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with two specimens labeled **T** and **R.** Study each of the specimens carefully and use them to give accurate responses to the questions and procedures below.

(a) Take the whole of specimen **T.** Softly press it downwards on the petri-dish using your first finger, and then remove your finger. Observe and record what happens to the specimen.

(i) Observation **(2 marks)**

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……
……

(ii) Explain the observation recorded in **(a)(i)** above**.** **(2 marks)**

……
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……
……

(b) (i) Specimens **T** and **R** perform some functions in the organisms from which they were removed from. State one function which is common to both specimen T and R.

(1 mark)

……
……

(ii) Using observable features only on specimen **R,** describe how it is adapted to the function named in (b) (i) above**.** **(3 marks)**

……
……
……
……

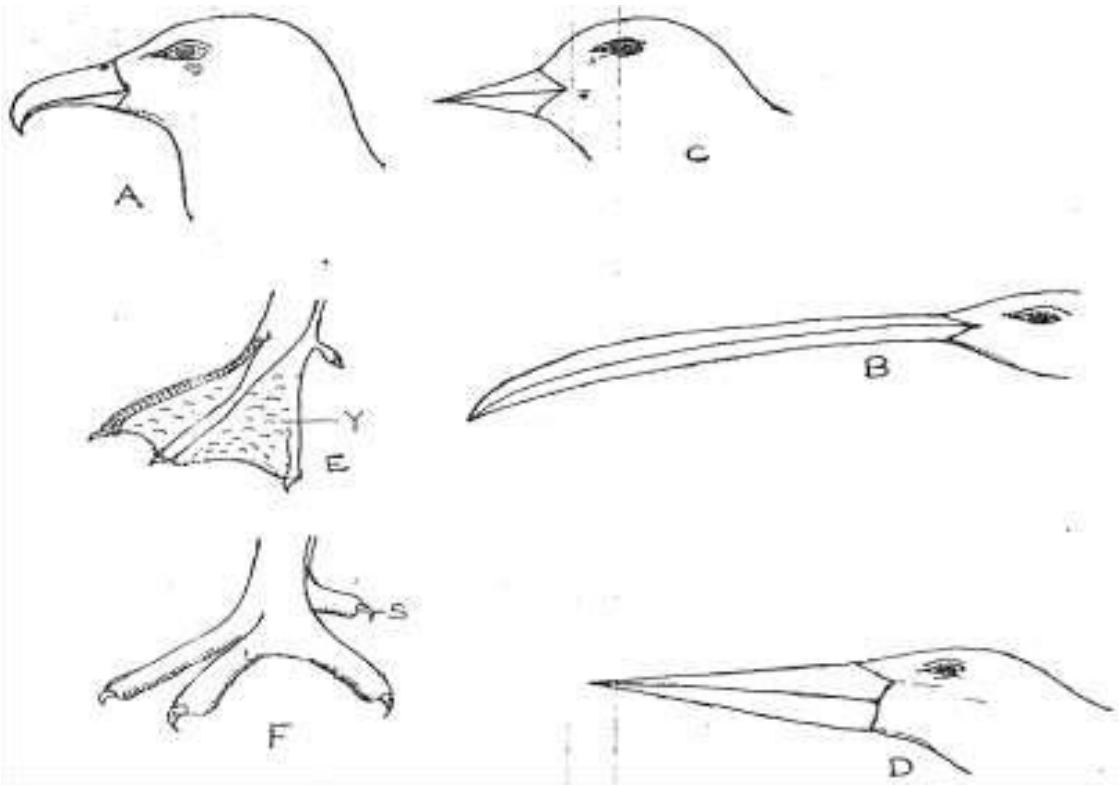
(c) Explain the main features that adapts specimen **T** to the function named in **(b)(i)** above. **(4 marks)**

……
……
……
……

(d) Identify the group of organisms that use specimen **R.** **(1 mark)**

……
……

2. The picture below shows series of beaks in birds.



(a) State the type of evolution that may have led to the emergence of the different beaks shown on the pictures above. **(1 mark)**

……
……

(b) Name the type of evolution structure represented by the beaks shown on the pictures above. **(1 mark)**

……
……

(c) Observe the pictures carefully. From your observations, what features are responsible for the different types of beaks? **(3 marks)**

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……

(d) Suggest the type of food likely eaten by birds whose beaks are shown in pictures **A, B, C** and **D**. **(4 marks)**

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(e) Briefly state how beak shown in picture **A** is adapted to feeding. **(1 mark)**

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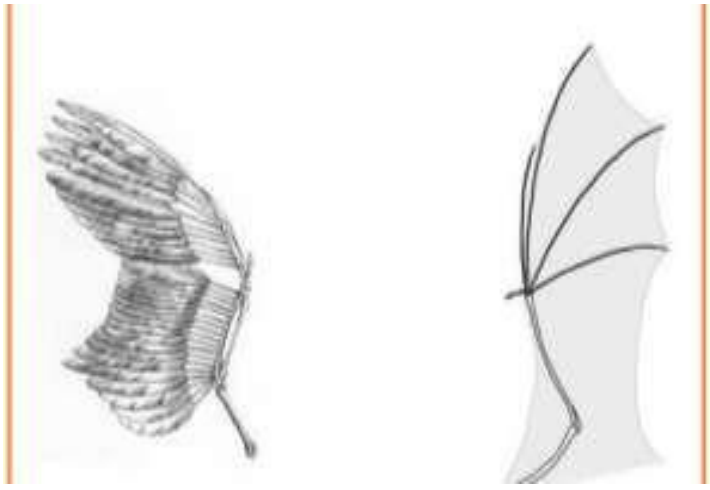
……

(f) Below are pictures from two different organisms.



(i) What is the specific function of the two structures shown in the pictures?(1 mark)

(ii) What type of structures is represented by the two structures shown on the pictures? **(1 mark)**

……
……

3. You are provided with a specimen labeled **K**.

(a) (i) With a reason, identify the part of the plant represented by the specimen. **(2 marks)**

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……
……

(ii) Cut the specimen into two halves transversely. Observe the arrangement of seeds inside the specimen. Suggest its placentation.

(b) (i) Suggest the mode of dispersal for specimen **K.** **(1 mark)**

……
……

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

……
……

(c) (i) Specimen **K** in its raw state has an excretory substance in its skin. Name the excretory substances**.** **(1 mark)**

……
……

(ii) How is the excretory substance named in **(c) (i)** importance to human? **(2 mark)**

(d) From the remaining parts of specimen **K**, cut out thin strips measuring 1cm wide and 5cm long. Place two of the stripes in tap water (solution **X)** and the other 2 in concentrated salt solution (solution **Y**). Allow the set ups to stand for 30 minutes.

(i) After the 30 minutes, remove the stripes from the two solutions. Observe and record the shape of the strips from each solution. **(2 marks)**

Solution **X**……

Solution **Y**……

(ii) Using your fingers, feel the texture of the strips from the two solutions**.** **(2 marks)**

Texture

Solution **X**……..

Solution **Y**……

(e) Explain the observations made in (d) (i) and (ii) for stripes in solution X. **(3 marks)**

……
……
……

BIOLOGY MOCKS

SERIES 1 TRIAL 6

BIOLOGY PAPER 3 CONFIDENTIAL

- 50ml distilled water labelled **Q1.**
- One ripe tomato labelled specimen **J.**
- 2 pieces of sewing machine cotton thread 9 15cm long each)
- Benedict‘s solution
- One mature pod from leguminous plant labelled specimen **K.**
- Iodine solution,
- One mature (dry) fruit of Bidens pilosa (Black jack) Labelled specimen **L.**
- 10cm long piece of visking tubing (wet) and preferably of 3cm width.
- 100 ml solution (made of 2% starch and 20% glucose) labelled Q2.
- Means of heating /Flame (candle or Bunsen burner)
- 100ml beaker
- A measuring cylinder – upto 10ml Distilled water.
- 6 test tubes
- Tap water / water in a wash bottle
- Test tube rank Test tube holder

A sharp razor blade / scalped

_Note‘

Guide lines for the preparation of solution Q2

To prepare 1 litre of solution Q2, dissolve 20g starch in about 500ml distilled water, dissolve 200g glucose in the solution. Make up the total volume of the mixture 1 litre by adding distilled water.

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BIOLOGY MOCKS

SERIES 1 TRIAL 6 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with liquids labelled **Q1** and **Q2.** Spare about 10ml of the liquids for part (a) of this question. Using a piece of thread, tie tightly one end of the visking (dialysis) tubing. Open the other end of the tubing and half fill it with liquid **Q1**. Tightly tie this end. **Ensure there is no leakage in both ends**. Immerse the tubing in a beaker containing liquid **Q2**. Leave the set up for at least 30 minutes.

a) Using iodine and Benedict's solution provided; test for the food substance in liquids **Q1** and **Q2**. Record the procedure, observation and conclusion in the table below.

(6mks)

LIQUID	PROCEDURE	OBSERVATION	CONCLUSION
A			
B			

After at least 30 minutes remove the visking tubing from the beaker and wash the outside of the tubing thoroughly to remove traces of liquid **Q2**.

b) Using the same reagents, test the food substance in liquid Q1 in the visking tubing. Record your observations and conclusion in the table below. **(2mks)**

Liquid	Observation	Conclusion
Q1		

c) i) Name the physiological process being demonstrated by this experiment**.** **(1mk)**

……

……

ii) Name two parts of the human body where the process named in **(c)(i)** above takes place. **(2mks)**

……

……

……

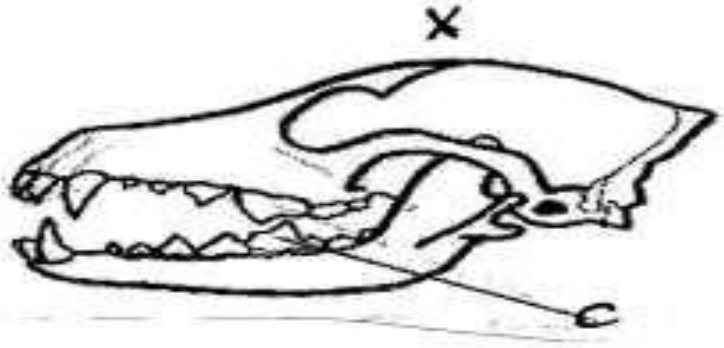
d) Account for the results obtained after carrying a second food test on liquid Q1. **(2 mks)**

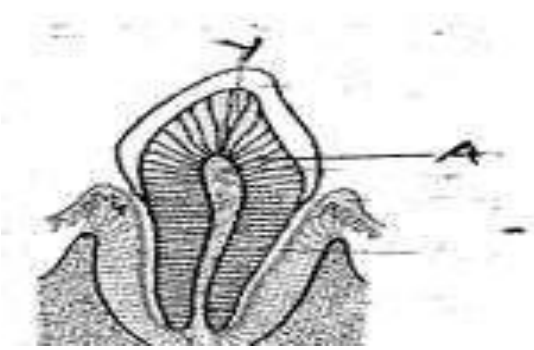
……

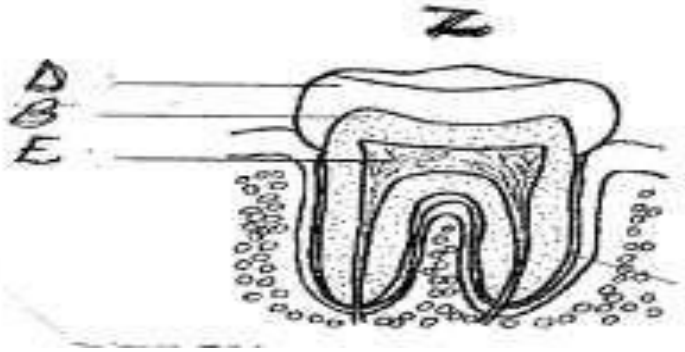
……

……

2. You are provided with diagrams of specimens taken from a mammal. Study them carefully and answer the questions that follow.







a) Identify the diagrams labeled below. **X , Y** and **Z** **(3 marks)**

……

……

……

b) State the diet of the animal from which diagram x was taken and give a reason for your answer. **(1 marks)**

(i) Diet ……

(ii) Reason **(2 marks)**

……
……

c) Name the parts labeled **A,B** and **D** **(3 marks)**

……
……
……
……

d) How are the following structures adapted to their functions **(2 marks)**

……
……
……

e) State the function of the parts labeled. **(2 marks)**

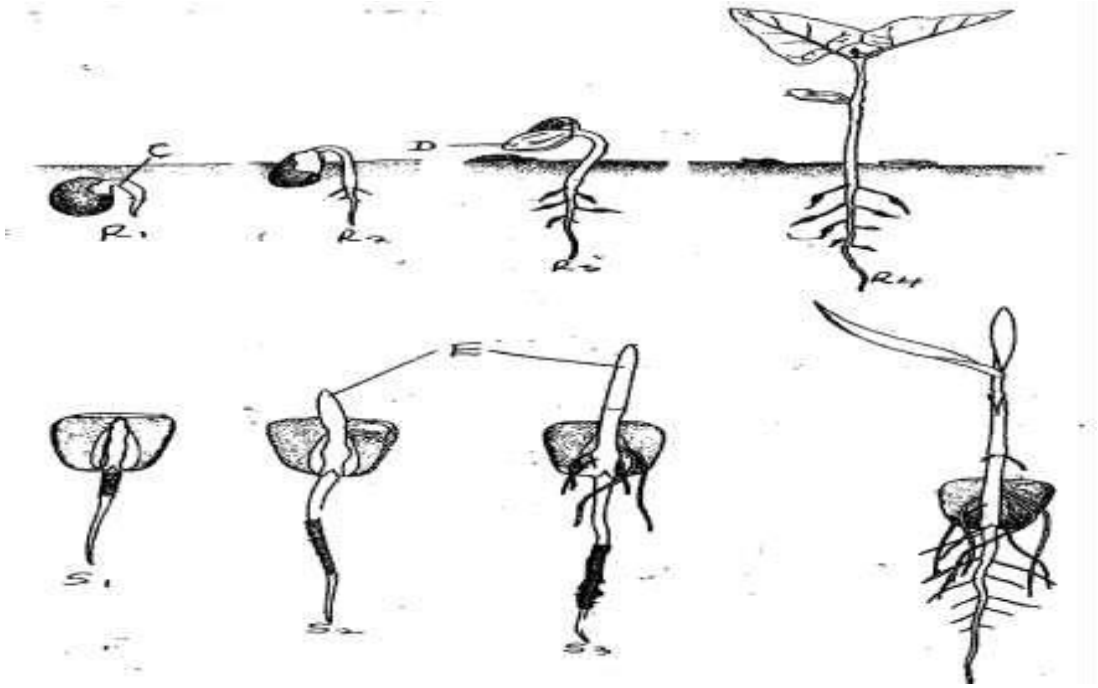
……
……
……

f) State **one** structural difference between **Y** and **Z** **(1 mark)**

……
……

3. Examine the seedling below and use them to answer the question that follow.

a) Name the part labeled C,D, E and state their importance for the seedling.



b) The R series of seedlings on the roots later in its life:

(i) What is the name of the swelling: **(1mk)**

……

……

(ii) Name the organisms that would be found in the swellings **(1mk)**

……

……

(iii) Explain the relationship that exists between the named organisms and the plant. **(1mks)**

……

……

c) (i) State the types of germination exhibited by R series of the seedlings. **(1mk)**

……

……

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

……

……

d) State any two external factors necessary for germination. **(2mks)**

……

……

……

BIOLOGY MOCKS

SERIES 1 TRIAL 7

BIOLOGY PAPER 3 CONFIDENTIAL

In addition to general laboratory apparatus, the teacher in charge of Biology should avail the following for each student.

1. Bougainvillea flower

- Iodine solution labeled **P**
- Benedict's solution labeled **Q**
- DCPIP labeled **R**
- Sodium hydroxide labeled **S**
- Copper (II) Sulphate labeled **T**
- Solution K

NB: Solution K is prepared by mixing 10g of maize flour, 5ml of pineapple juice in 100ml of distilled water for 10 students. For more than 10 students, use the ratios to prepare solution for your students.

- 4 clean test tubes in a test tube rack
- Dropper
- Source of heat

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BIOLOGY MOCKS

SERIES 1 TRIAL 7 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with specimen labeled X, use it to answer questions that follow.

(a) **(i)** State the agent of pollination **(1mk)**

……

……

(ii) Give reasons for your answer in a(i) above **(2mks)**

……

……

……

(b) Describe the floral parts of specimen X

Floral	Description

(8mks)

(c) **(i)** State the class to which the specimen X belongs **(1mk)**

……

……

(ii) Give reason(s) for your answer in c(i) above **(2mks)**

……

……

2. (a) You are provided with reagents **P** – Iodine, **Q** – Benedits solution, R-DCPIF, S-Sodium hydroxide and **T**-Copper (II) sulphate)

Use the reagents to identify the food substance(s) in solution **K**

Food	Procedure	Observation	Conclusion

(12mks)

(b) Name the end product of digestion of food substance(s) present in solution K **(1mk)**

……

……

(c) Describe the assimilation of food substance(s) identified in **2(a)** above **(2mks)**

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……

3. Study the photograph **T** provided and answer the questions that follow.

(a) (i) Name the class to which the specimen belongs **(1mk)**

……

……

(ii) Give reasons for your answer in **a(i)** above **(2mks)**

……

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(b) (i) Describe the shape of the specimen **(1mk)**

……

……

(ii) What is the significant of your description **6(i)** above **(1mk)**

……

……

(c) Measure in millimeters the depth of:

(i) Specimen from the tip of the mouth to the tip of the tail **(1mk)**

Length……..mm

(ii) Tail from the anus to the tip of the tail **(1mk)**

Length……mm

(iii) Using the measurement in c(i) and c(ii) above, calculate the tail power (percentage length of tail to the rest of the body)

(2mks)

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……

(d) Name the parts labeled **B** and **D** **(2mks)**

……

……

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……

(e) State one function of the part labeled **E**

……

……

BIOLOGY MOCKS

SERIES 1 TRIAL 8

BIOLOGY PAPER 3 CONFIDENTIAL

Each candidate will require:

- Specimen **S** (A sukuma wiki - Kale) leaf.
- Coloured photographs on page 3 of the question paper.
- Specimen **L** (Thoracic vertebra).
- Specimen **M** (Lumbar vertebra).

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

BIOLOGY MOCKS

SERIES 1 TRIAL 8 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with specimen **S**. Study the specimen carefully then answer questions that follow.

a) Make a drawing of specimen **S** and label midrib, leaf lamina, leaf margin, and leaf petiole.

(3mark)

b) Name the class to which the specimen belongs**.** **(1 mark)**

……

……

c) Identify ***<u>two</u>*** features of the specimen **S** that may have been used to place it in the class named in **(b)** above. **(2 marks)**

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……

d)Using observable features only, explain how the specimen **S** is adapted to its photosynthetic function. **(6mark)**

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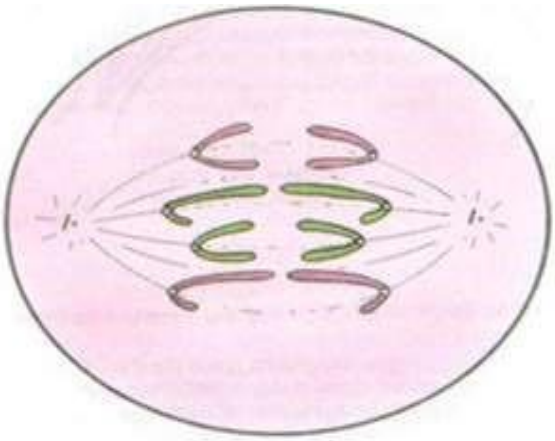
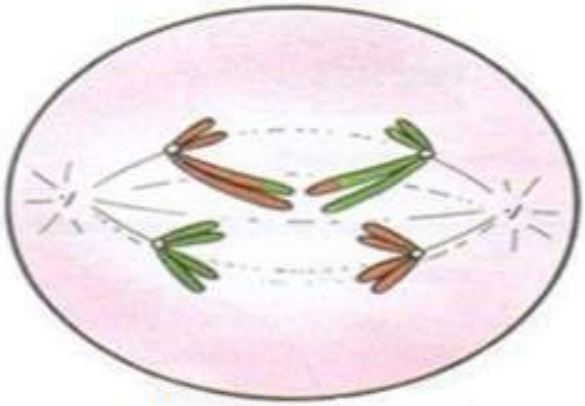
……

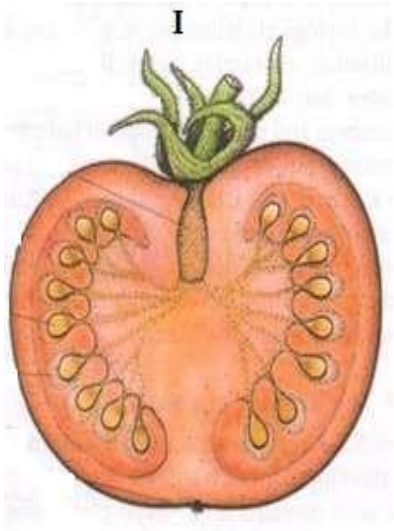
2. Use the photographs provided to answer the questions that follow:

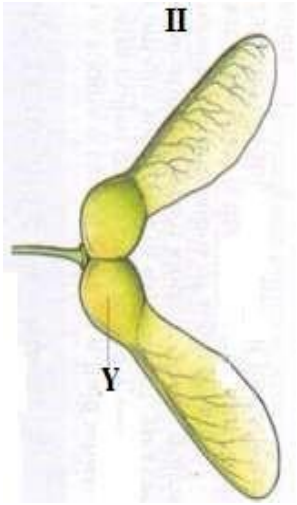


A



B





a) **(i)** Identify the type of cell division represented in the photographs **A** and **B** **(2mark)**

……

……

(ii) With a reason, name the stage of cell division represented in each case**.** **(4mark)**

……

……

……

……

(iii) Name the parts of human body where the process **B** represented above occur. **(2mark)**

……
……

b) (i) What type of fruit is represented by photograph **I**? Give two reasons. **(3mark)**

……
……
……
……

(ii) Name the agent of dispersal for fruits **II** and **III.** **(2mark)**

……
……
……
……
……

(iii) How are the fruits adapted for the mode of dispersal stated in **(b)(ii)** above? **(2mark)**

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……

(iv) Identify the type of placentation shown by photograph **I**. **(1 Mark)**

……
……

3. You are provided with specimens labeled **L** and **M**. Study them then answer questions that follow:

a) Identify the specimens **L** and **M** **(2mark)**

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……

b) Name the part of the body where each is found. **(2mark)**

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……
……

c) With which bone does the vertebra **L** articulate, other than those of the vertebral column? **(1mark)**

……
……

d) Using observable features only, state two adaptations of the specimen **M** to its functions. **(2mark)**

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……

e) Observe the specimen **L** from the anterior view. Name the parts of the vertebra that are most pronounced. **(3mark)**

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……
……
……

f) Name the cartilaginous pad found between two adjacent vertebrae and state its function. **(2mark)**

Name

……
……

Function

……
……

BIOLOGY MOCKS

SERIES 1 TRIAL 9

BIOLOGY PAPER 3 CONFIDENTIAL

Question 1

Each candidate should be provided with:

1. A piece of small intestine of about 3cm from a freshly killed cow (with intestinal contents intact)
2. A 50ml beaker.
3. 4 test tubes in a test tube rack.
4. Means of heating.
5. Benedicts solution.
6. Iodine solution.
7. 10% sodium hydroxide solution.
8. 1% copper sulphate solution.
9. Test tube holder.

NB: The small intestine can be bought a day before the exams and preserved.

Question 3

Specimen R – A bony fish e.g. Tilapia (one may be shared between two students).

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

BIOLOGY MOCKS

SERIES 1 TRIAL 9 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with a specimen labelled H which is a piece of a mammalian intestine. Squeeze the contents in the lumen into a test tube. Add 3ml of water and shake the contents. Reserve the piece of intestine for question **(b).**

(a) (i) Use the reagents provided to test for the presence of starch, proteins and reducing sugars in the contents. Record the procedures, observations and conclusions in the table below.

Food substance	Procedure	Observations	Conclusions
Starch			
Proteins			
Reducing sugars			

(9 marks)

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

……
……
……
……

(b) Cut specimen **H** along its length to expose the inner surface.

Feel the inner and outer surfaces of the specimen. Record your observations. **(3 marks)**

……

……

……

……

(i) Account for our observations of the inner surface. **(3 marks)**

……

……

……

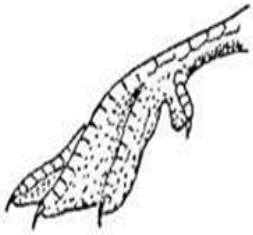
……

2. (a) The figure below shows feet of various birds. Study the diagram and answer the questions that follow. **(2 marks)**

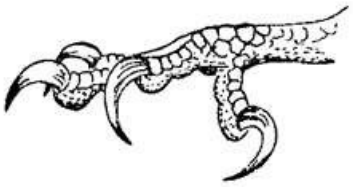
Bird A

Bird B

Bird c



Bird D



Bird E

(i) Name the type of evolution represented by the diagrams. **(1 mark)**

……

……

(ii) Using Darwin's theory of evolution, explain how the feet of **bird E** would have evolved. **(3 marks)**

……

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……
……

(iii) Explain how Larmack could have explained the evolution of feet of bird **C**.
(3 marks)

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……
……
……

(b) Figure 1 represents a bat wing, Figure 2 a whale paddle and Figure 3 an insect wing. Study the diagrams and answer the questions that follow.

Figure 1

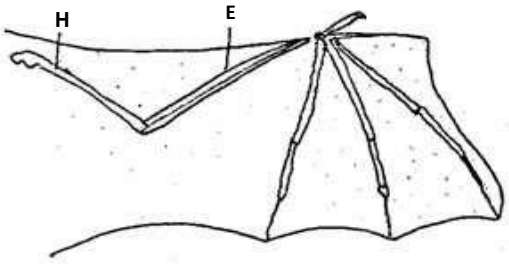

Figure 2

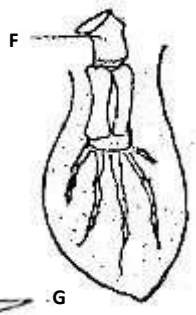

Figure 3

(i) Name parts labelled **E** and **F**. **(2 marks)**

……
……
……
……

(ii) State **one** difference between the wings in Figure **1** and **3**. **(1 mark)**

……
……
……

(iii) Name the type of joint found at proximal end of bone marked **H**. **(1 mark)**

……
……

3.(a) You are provided with a specimen labelled **R.** Using observable features only, identify the class to which the specimen belongs.

Class ..... **(1 mark)**

List the observable features used to identify the class which the specimen belongs **(3 marks)**

.....

.....

.....

.....

(b) Stroke the specimen on the lateral side from the head end to the tail end. Repeat the stroking from the tail end to the head end.

(i) Record your observation. **(2 marks)**

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.....

.....

(ii) Observe the arrangement of the scales. Record your observations. **(1 mark)**

.....

.....

(iii) State the significance of the arrangement of the scales. **(1 mark)**

.....

.....

(c) Name the observable features that adapt the specimen to:

(i) forward movement. **(1 mark)**

.....

.....

(ii) Balancing. **(1 mark)**

.....

.....

(iii) Staying upright. **(1 mark)**

.....

.....

(iv) Fast movement. **(1 mark)**

.....

.....

BIOLOGY MOCKS

SERIES 1 TRIAL 10

BIOLOGY PAPER 3 CONFIDENTIAL

M – *solanum incanum* (sodom apple) flowers
N– Hibiscus flowers

- Blades
- Microscope slide
- Cover slips
- Microscopes
- Iodine solution
- L – diastase / invertase
- 0.1%, 1.4% sodium chloride solution
- Benedicts solution
- Thermometer
- Test tubes (3) per candidate
- Test tubes holder
- Water bath maintained at 37^0C
- Hand lens

NAME……ADM NO……

SCHOOL……..CLASS……

DATE……

BIOLOGY MOCKS

SERIES 1 TRIAL 10 PAPER 3

Kenya Certificate of Secondary Exams

TIME:1HRS 45 MINS

1. You are provided with specimen M and N. Examine them.

(a) Describe the arrangement of the stamens in specimen N. **(3 marks)**

……

……

……

……

……

(b) Carefully remove one stamen from specimen M. Examine it using a hand lens. Draw and label it. **(4 marks)**

(c) Remove another stamen form specimen **M**, cut the anther transversely into two equal parts. Tap the pollen grains from the lower half onto a microscope slide. Add a drop of iodine. Place a cover slip and pass on the covers slip gently to spread out the pollen grains. Observe the pollen grains under medium power.

Draw one pollen grain **(1 mark)**

(d) Remove an anther from **N**. Place it on a microscope slide. Add a drop of iodine solution. Cover with a cover slip. Press gently on the cover slip to spread out the pollen grains. Observe the pollen grains under medium power.

Draw one pollen grain. **(1 mark)**

(e) State one observable difference between pollen grains of specimen M and N.**(1 mark)**

……

……

(f) State four observable differences between the corolla of specimen **M** and **N (4 marks)**

……

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……

……

……

2. You are provided with a solution labeled L, starch solution and sodium chloride in two different concentrations, 0.1% and 1.4%. Place 3 ml of starch solution in test tubes labeled 1, 2 and 3. Add 3 drops of 0.1% sodium chloride to the test tube labeled 2 and 3 drops of 1.4% sodium chloride to the test tube labeled 3. Add 3 ml of solution L to each of the test tubes labeled 2 and 3.

(a) Place a drop of the contents from each test tube 1, 2 and 3 on a white tile.

To each drop add iodine solution;

Record your results in the table below. **(2 marks)**

Test tube	Observation
Test tube 2	
Test tube 3	

(b) Place the test tubes in a water bath maintained at 37^0C. Allow to stand for 30 minutes. Place a drop of the contents from each test tube on a white tile. To each drop add iodine solution.

Record your observations in the table above;

(2 marks)

Test tube	Observation
Test tube 2	
Test tube 3	

(c) Add equal amounts of Benedicts' solution to test tube labeled 2 and 3. Boil Record your observations **(2 marks)**

Test tube	Observation
Test tube 2	
Test tube 3	

(d) Account for the result in test tube 3 at the end of the experiment. **(2 marks)**

……

……

……

……

(e) Suggest the identity of solution L. **(1 mark)**

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……

(f) Why was the test tube labeled 1 included in the experiment? **(1 mark)**

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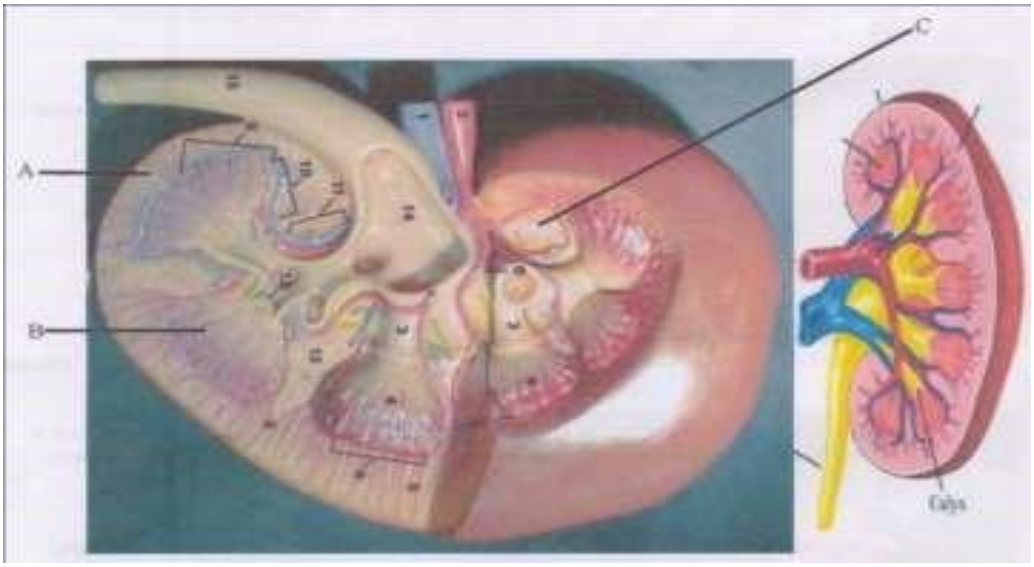
……

(g) Why were the test tubes placed in a water bath maintained at 37^0C. **(1 mark)**

……

……

3. Below is a section through a mammalian organ.



(a) Identify the section. **(1 mark)**

……

……

(b) Name the parts labeled **A, B** and **C** **(3 marks)**

……

……

……

……

(c) State three functions of the photographed specimen. **(3 marks)**

……

……

……

……

(d) Label on the photograph using **G** and **L** the region where the Glomerulus and Loop of Henle are located respectively. **(2 marks)**

(e) Name a process that occurs in the Glomerulus and Loop of Henle. **(2 marks)**

(i) Glomerulus

……

……

(ii) Loop of Henle

……

……

(f) Name two renal diseases **(2 marks)**

Test tube	Observation at start of experiment	Observation at the end of experiment
1		
2		
3		

'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

Note:Exam questions are always free of charge

Marking scheme are not free

'an investment of knowledge pays

The following KASNEB notes are available;

- ATD
- CPA
- CS
- CIFA

Call Mdm.Mariam:0746711892 to acquire them