

KIKUYU SUB-COUNTY

BIOLOGY PRACTICAL 1

FORM 3 2017

TIME: _____

NAME: _____ ADM NO. _____ CLASS: _____

1. You are provided with food suspension labeled Z. Use the reagent and materials provided to test food substance present in suspension Z.

Food test	Procedure	Observation	Conclusion

(12 marks)

2. You are provided with three materials listed below to be used for comparing the rate of hydrogen peroxide reactivity. The reactivity is demonstrated by the production of different quantities of bubbles.

- A Irish potato
B Piece of muscles (meat)
C Liver

(a)

- Using a pestle; mortar and sand, grind a small piece of Irish potato into soft pulp. Add 10ml of distilled water.
- Mix thoroughly and then filter into a beaker labeled A. Repeat the procedure for muscle and liver
- Put the filtrate in test tubes B and C respectively
- Take three clean test tubes and into each put 3ml of hydrogen peroxide solution provided. Label them as A₁, B₁, C₁
- Starting with A₁ add 1ml of potato filtrate from beaker A. Observe and record your results with a tick in the table below.
- Repeat the procedure with B₁ and C₁
- Tick the appropriate observation in the box provided below

Material	Vigorous	Average	Slow	None
Irish potato				
Muscle				
Liver				

(3 marks)

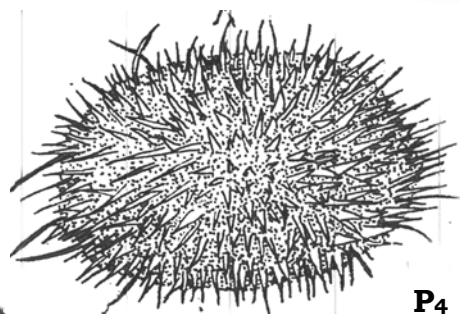
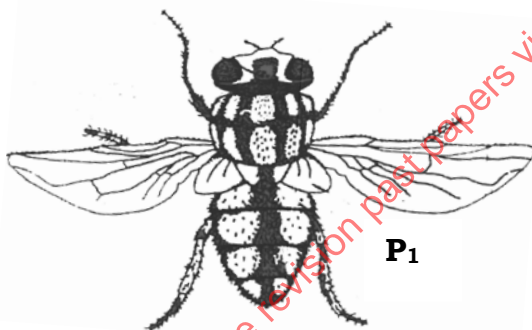
- (b) Repeat the procedure in (a) above but using boiled potato, muscle and liver. Record observations

Material	Vigorous	Average	Slow	None
Irish potato				
Muscle				
Liver				

(3 marks)

- (c) Give an explanation for the difference in results obtained in (a) and (b) above
(2 Marks)

- (d) What would have been observed in part (a) of the procedure if the kidney was used instead of the liver? Give a reason (2 marks)
- (e) Explain the role of catalase in the body (2 marks)
- (f) Why was it necessary to grind the specimens (2 marks)
3. Below are drawings of different animals P₁, P₂, P₃, P₄ and P₅. Study the diagrams and answer the questions that follow



- a). i) Name the phylum and class to which specimens P₁ and P₃ belong
(2 Marks)

Phylum

Class

- ii). State two distinguishing features found in the members of the phylum.
(2marks).

- iii) State at least two observable characteristics of specimen P5 (2 marks)

- b). Use the dichotomous key given below to identify the specimens P₁ and P₃.
For each specimen write down the steps you follow to arrive at your answer
(6 marks).

Identity	Steps followed	Name of organism
P2		
P4		
P5		

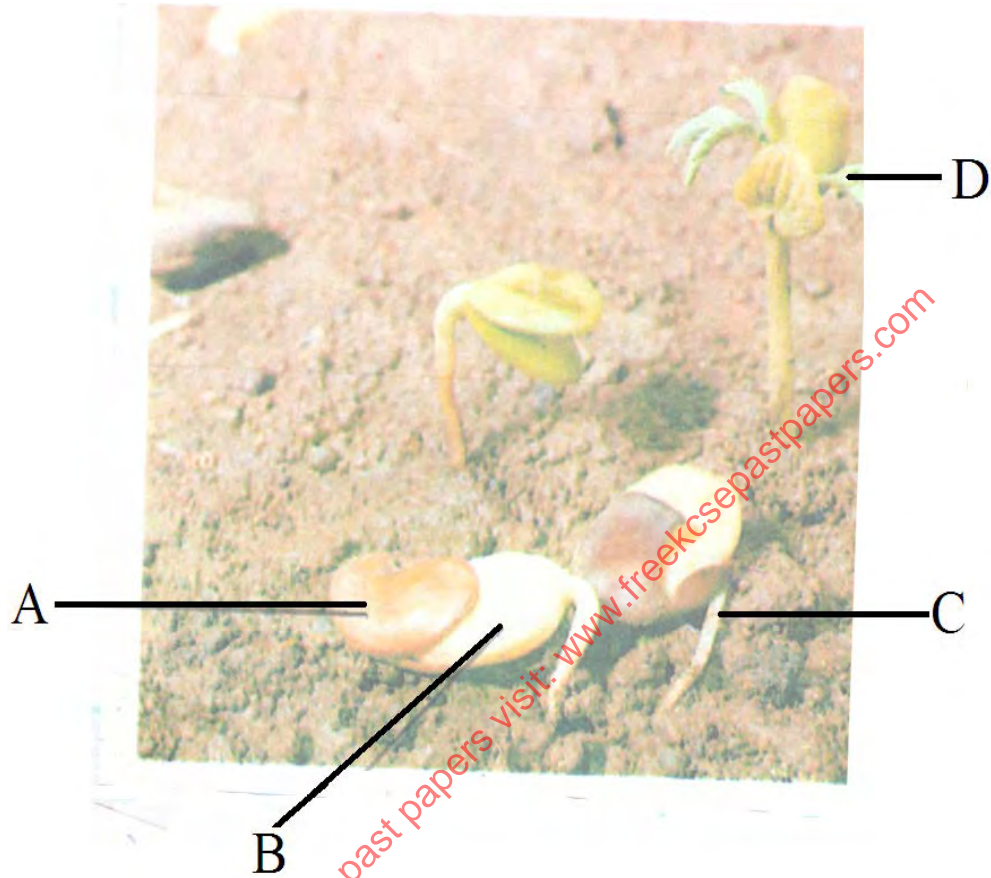
1. a). Animal with segmented body go to 2
b). Animal without segmented body Mollusca
- 2 a). Animal with appendages go to 3
b). Animal without appendages go to 5
3. a). Animal with 3 pairs of legs go to 4
b). Animals with 4 pairs of legs Arachnida
4. a). Animal with wings go to 7
b). Animals without wings go to 9
5. a). Animal with long cylindrical body go to 6
b). Animal with spherical body Echinodermata

6. a). Animal with clitellum Annelida
b). Animal without clitellum Nematoda.
7. a). Animal with one pair of wings Diptera
b). Animal with two pairs of wings go to 8
8. a). Animal with a pair of hard forewings and a Pair of membranous hind wings Coleoptera
b). Animal with two pairs of soft wings Lepidoptera
9. a). Animal with constriction between thorax and abdomen Hymenoptera
b). Animal without constriction between thorax abdomen Isoptera

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FORM FOUR
QUESTION ONE

The photograph below shows germination in some plants. Use it to answer the question that follow.



(a) Name the parts labeled A ,B,C and D. (4 marks).

A

B

C

D

(b) State the function of each the parts marked (2marks)

B

D

- (c) Name the type of germination shown in the photograph. Give one reason for your answer.

Type of germination

Reason

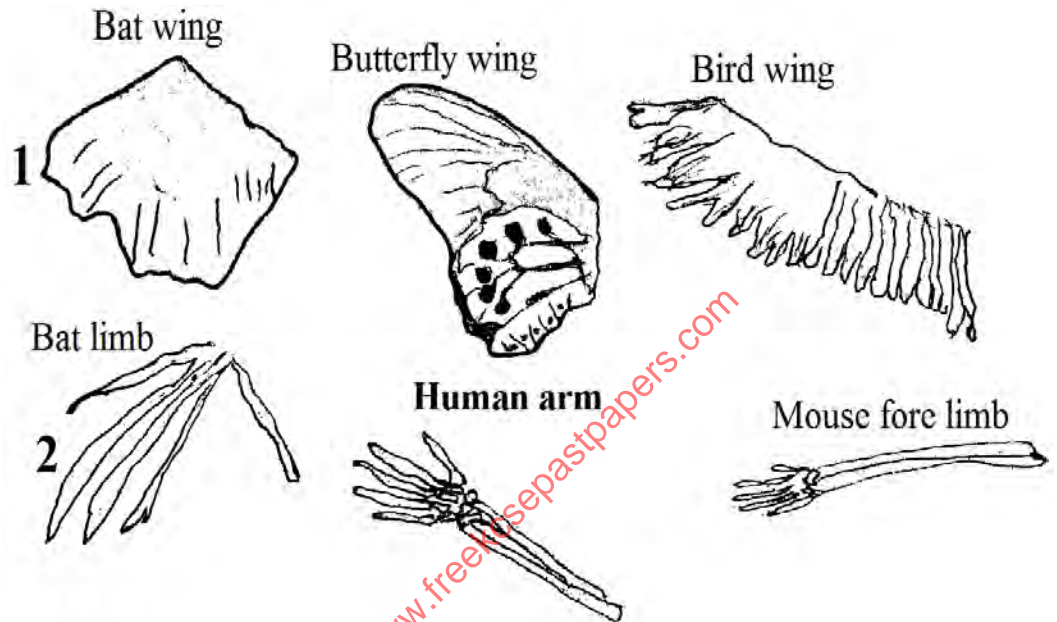
(2 marks)

- (c) Explain how the type of germination is attained by the plant (2 marks)

- (e) Explain the role of water during the process of seed germination (2 marks)

QUESTION TWO

The photographs below show evidences of different structures that indicate evidences of evolution



a) Identify the type of structure represented by photographs (2 marks)

1--

2--

b) Define each of the type of structures you have identified in (a) above. (4 marks).

- (c) State and explain the type of evolution exhibited by photographs.

Photograph 1 (1 mark)

Photograph 2 (1Mark)

Explanation (2 marks)

c) Name **Two** vestigial structures (2 marks)

d) List **Three** other evidences of evolution (3 marks)

QUESTION THREE

You are provided with a specimen labeled Q, Biuret's reagent, Benedict's solution and Dichlorophenolindophenol(DCPIP) in three test tubes.

- a) Cut a transverse section of specimen Q
 - i) Name the type of placentation in specimen Q (1 mark)
 - ii) Agent of dispersal of specimen Q (1 mark)
 - iii) Give a reason for your answer in a) (ii) above (1 marks)
- b) Squeeze the juice in specimen Q into an empty beaker. Using the reagent provided, test for the food substances in the juice. Record the food substances being tested, your procedures, observations and conclusions, in the table below(6 marks).

Food Substance	Procedure	Observation	Conclusion

c) You are provided with a solution labeled K, Iodine solution in a beaker, two threads and a visking tubing.

ii) Put two drops of solution K on the tile provided add a drop of Iodine solution.

Observation.....(1 mark)

Conclusion.....(1 mark)

i) Tie one end of the visking tubing tightly with one of the threads provided. Open the other end of the visking tubing and put 10ml. of solution K into the viskingtubing. Tie the second end of the visking tubing tightly, ensuring that there is no leakage of solution K from the viskingtubing. Rinse the outside of the visking tubing thoroughly with tap water. Immerse the visking tubing into the iodine solution in the beaker and allow the set up to stand for 30 minutes.

ii) Remove the visking tubing and record your observations (1 marks).

iii) Account for the observations made in (c) (ii) above (1 marks).

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