231/3

Biology

Paper 3

July/Aug 2018

LANY ACHIEVERS F4 EXAMINATION 2018

(Kenya Certificate Of Secondary Education)

Confidential Instructions

The instructions below will enable the head of the institution and teacher of Biology to prepare for the Biology Practical Examination.

No one else should access the instructions directly or indirectly.

Each candidate will require;

1. 10 ml of 2% starch solution labelled T in a test tube.
2. 2ml of 1% amylase enzyme suspension labelled V in a test tube.
3. Two labels.
4. 4 test tubes in a ruck.
5. A test tube holder.
6. Means of heating.
7. 100ml of warm water (37^0C) in a beaker.
8. 10cm long visking tubing.
9. Two threads. (each about 10 cm long)
10. 15ml of 10% glucose solution labelled W in a test tube.
11. 50ml of distilled water in a 80ml beaker labelled distilled water.
12. Means of timing.
13. 10ml measuring cylinder.

Access to;

- Iodine solution in a beaker provided with a dropper.
- Benedict's solution in a beaker provided with a dropper.

-How to make 2% starch solution for 50 students.

- Dissolve 20g of starch solution in a 100 ml of distilled water, add distilled water upto the 500ml mark. Boil mixture while stirring and allow to cool.

-How to make 1% amylase enzyme suspension for 50 students.

- Dissolve 1g of amylase in 20ml distilled water. Add distilled water to the 100ml mark.

-How to make 10% glucose solution for 50 students.

- Dissolve 75g of glucose in 100ml distilled water. Add distilled water to the 750ml mark.

Name.....Adm…….Index No…….

Class……

231/3

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$1^{3/4}$ Hours

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(Kenya Certificate Of Secondary Education)

Instructions to candidates

- Write your name, admission number, index number and class in the spaces provided.
- Answer all the questions in the spaces provided.
- You are required to spend the first 15 minutes of the $1^{3/4}$ hours allowed for this paper reading the whole paper carefully before commencing your work.
- This paper consist of 5 printed pages.
- Check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

For Examiner's use only

Question	Maximum score	Candidate's score.
1	14	
2	13	
3	13	
Total Score	40	

1. a) You are provided with a solution labelled T and a suspension labelled V. Put 4ml of solution T in a test tube and label the test tube as A. Put another 4ml of solution T in

another test tube and label it as B.

i) To each test tube, add two drops of iodine solution and shake. Record your observation. (1mk)

ii) Name the food substance present in solution T (1mk)

iii) Add 1ml of suspension v to test tube B. place both test tubes, A and B in a warm water bath provided. Let the set up stand for 30 minutes.
Record your observations.
Test tube A…….. (1mk)

Test tube B……... (1mk)

iv) Account for the observations made in iii) above.
Test tube A…….. (1mk)
Test tube B……... (1mk)

v) Why were the test tubes placed in a warm water bath for 30 minutes? (1mk)

vi) What was the role of test tube A in this investigation? (1mk)

b) you are provided with a visking tubing, a solution labelled W and two pieces of thread.

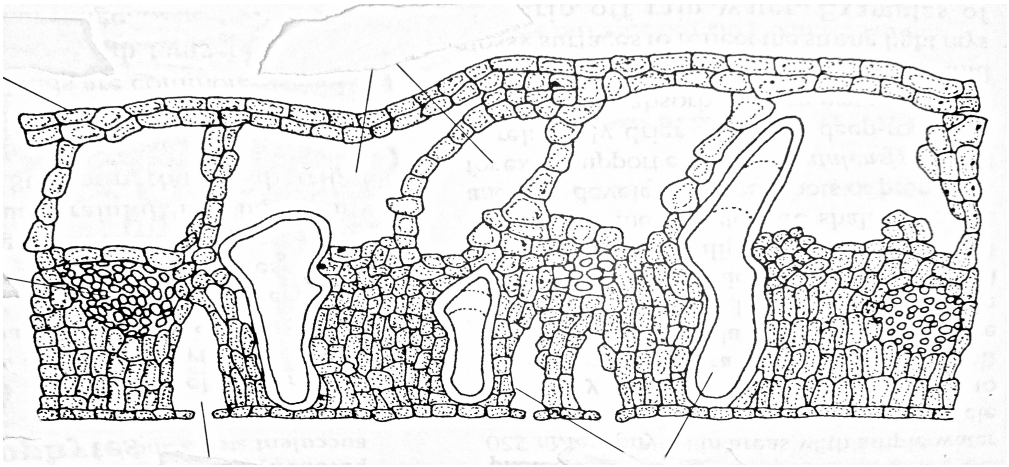
i) Put 2ml of solution W in a test tube. Add 2ml of Benedict's solution and heat.
- Record your observation. …….(1mk)
- Give a conclusion for the observation made above. (1mk)

ii) Tie one end of the visking tubing tightly using one of the threads provided. Put 10 ml of solution w into the visking tubing. Tie the other end of the visking tubing tightly. Ensure that there is no leakage at both ends of the visking tubing. Wash the outside of the visking tubing with tap water. Place the visking tubing upright in the beaker containing distilled water. Allow the set up to stand for 30 minutes.
Put 2ml of the liquid in the beaker in a test tube. Add 2ml Benedict's solution into the liquid and heat.
- Record your observation (1mk)
  ……
- Account for the observation made above. (2mks)

iii) State one role of the process being investigated. (1mk)

2.

a) The photomicrograph below illustrates a transverse section of a leaf.

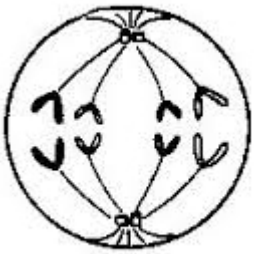


i) Name the habitat of the plant from which the leaf was obtained. (1mk)

ii) Give three reasons for your answer in a) i) above. (3mks)

iii) Name two gaseous exchange surfaces in the leaf shown above. (3mks)

b) The photograph below shows a cell dividing in an onion root tip.



F

G

i) Name the type of cell division illustrated in the photograph. (1mk)

ii) Name the stage of cell division named in (i) above. (2mks)

iii) Give two reasons for your answer in b) ii) above. (2mks)

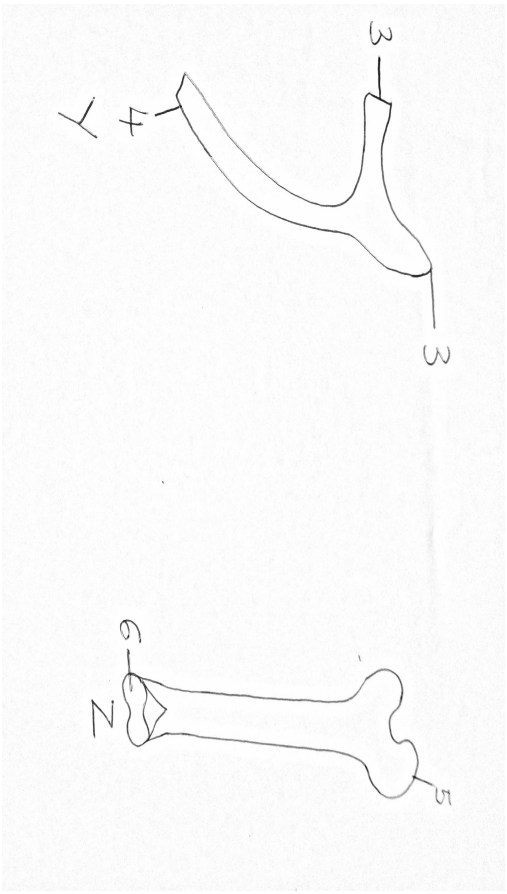
iv) Name the parts labelled :

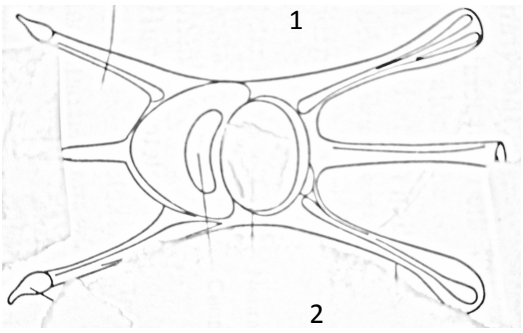
F…….. (1mk)

G…….. (1mk)

v) State one significance of the cell division shown above. (1mk)

3. The photographs shown below represents bones obtained from a mammal.





a) Name the bones labelled:
   X……. (1mk)
   Y……. (1mk)
   Z…….. (1mk)
b) State the functions of the parts labelled:
   1. …… (1mk)
   2. ……..... (1mk)

c) Name the bones that articulate with the parts labelled:
   3. …… (1mk)
   4. …… (1mk)
   5. …… (1mk)
   6. …… (1mk)
d) The part labelled 5 articulates with the bone named in (c) above to form a joint called
   ……. (1mk)
e) How is the bone labelled *Z* adapted to its function? (3mks)

……
……
……