NAME…….. **INDEX NO**…….....

231/1
BIOLOGY
PAPER 1
(THEORY)
JULY/AUGUST, 2014
TIME: 2 HOURS

CANDIDATE'S SIGN……..……..……..

DATE……..……

KIHARU/KAHURO DISTRICT JOINT EXAMINATION - 2014

Kenya Certificate of Secondary Education
BIOLOGY
PAPER 1
(THEORY)
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Write your **Name**, **Index Number** and **School** in the spaces provided above.
2. **Sign** and write the **date** of examination in the spaces provided above.
3. Answer **all** the questions in the spaces provided.
4. Answers must be written in the spaces provided in the question paper.
5. Additional pages **must not** be inserted.

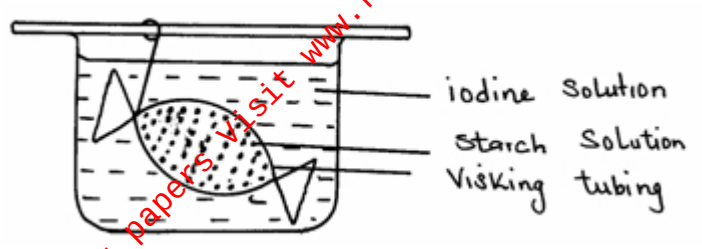
FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1 - 26	80	

1. Name the gas produced during anaerobic respiration in plants. (1mk)

_____

2. Study the diagram below.



(a) Name the physiological process being investigated. (1mk)

_____

(b) State the observation made after some time. (1mk)

_____

_____

_____

(c) Explain the observation in (b) above. (2mks)

_____

_____

_____

_____

3. (a) State the function of phloem tissue. (1mk)

_____

_____

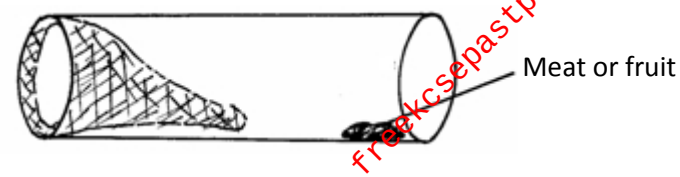
(b) State **one** adaptation of phloem tissue to it's function. (1mk)

_____

_____

_____

4. Name and state the function of the apparatus below. (2mks)



Apparatus	Function
_____	_____
	_____

5. An animal has the following number of teeth four molars, two canines, six incisors and eight remolars in upper jaw. In the lower jaw there are six incisors, eight premolars two canine and six molars.

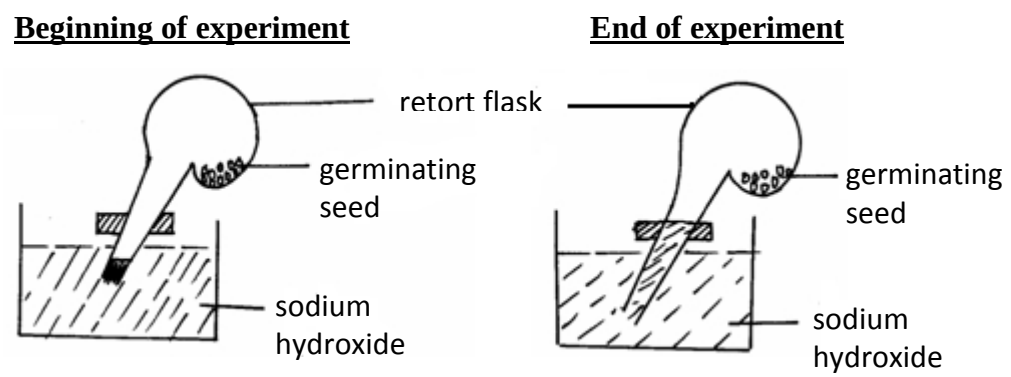
(a) Write it's dental formulae. (1mk)

_____

(b) State the mode of feeding of the animal above. (1mk)

_____

6. The diagram below shows an experiment that was set up to investigate germinating seeds.



(a) What changes are observable at the end of experiment? (1mk)

_____

_____

_____

(b) Explain the change observed in (a) above. (2mks)

_____

_____

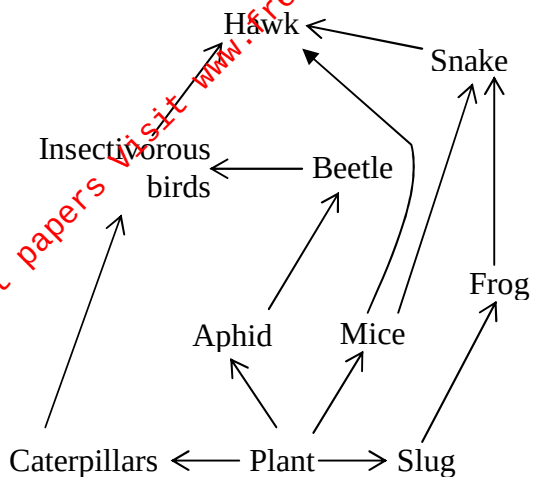
_____

_____

(c) Name the chemical process being investigated. (1mk)

_____

7. Study the food web shown below and answer the questions that follow.



(a) Name all the organisms that occupy the second trophic level. (1mk)

_____

(b) What is the other name of the second trophic level? (1mk)

_____

(c) Draw a food chain that ends with hawk as a tertiary consumer. (1mk)

_____

_____

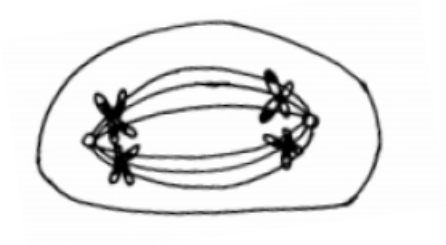
(d) Define the term biomass. (1mk)

_____

_____

_____

8. The diagram shows a stage cell division. Use it to answer the questions below.



(a) Identify the stage of cell division. (1mk)

_____

(b) Give a reason for the answer (a) above. (1mk)

_____

_____

_____

9. (a) What are the expected results of a test cross. (1mk)

_____

_____

_____

_____

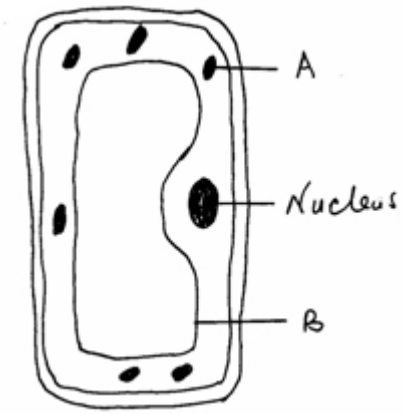
(b) What is meant by non-disjunction? (1mk)

_____

_____

_____

10. The diagram below shows the structure of a plant cell as seen under light microscope.



(a) State the adaptation of structure labelled **A** to its function. (1mk)

_____

(b) On the diagram label the structure that controls movement of materials into and out of the cell. (Use letter Y). (1mk)

(c) State where the following organelles are formed in a cell.

(i) Ribosomes _____ (1mk)

(ii) Lysosome _____ (1mk)

11. (a) Define:

(i) Vestigial structures. (1mk)

(ii) Homologous structures. (1mk)

(iii) Analogous structures. (1mk)

12. Name **three** supportive tissues in plants. (3mks)

13. Use the diagram **below** to answer the questions that follow.

(a) Name the type of tropism exhibited by root in the diagram above. (1mk)

(b) Name the hormone that brings about the response. (1mk)

14. (a) Distinguish between epigeal and hypogeal germination. (1mk)

(b) Define apical dominance. (1mk)

_____

_____

_____

(c) Explain the importance of apical dominance in agriculture. (2mks)

_____

_____

_____

_____

15. (a) Explain why carbon (II) oxides is referred to as a respiratory poison. (2mks)

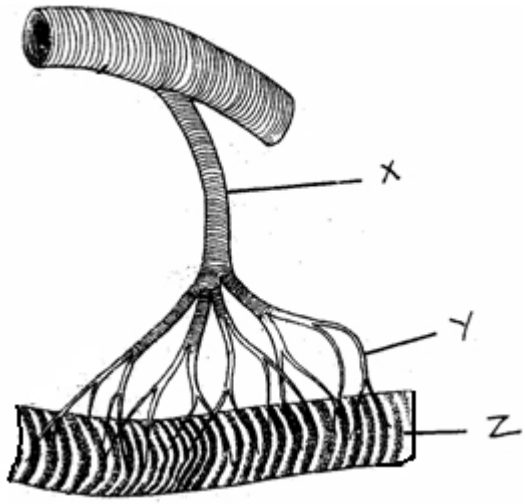
_____

_____

_____

_____

16. The diagram below show a structure used for gaseous exchange in an organism.



(a) Label parts. (3mks)

X _____

Y _____

Z _____

(b) State the adaptation of part labelled **Y**. (1mk)

_____

_____

_____

17. Use the diagram of (euglena) below to answer the questions that follow.

(a) Into which kingdom is euglena placed. (1mk)

_____

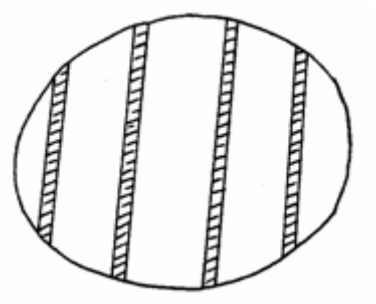
(b) Name **two** other organisms placed in the same kingdom. (2mks)

_____

_____

_____

18. The diagram below shows the field of view of a light microscope as seen by students during an experiment.



(a) Six cell were observed in the field of view. Determine the size of one cell. (2mks)

_____

_____

_____

_____

(b) Write the formula of linear magnification. (1mk)

(c) State the function of condenser in a light microscope. (1mk)

19. State **three** functions of exoskeleton. (3mks)

20. In an attempt to estimate the number of weaver birds in a woodland 435 were captured marked and released. Three days later 620 were captured. 75 of which were marked.

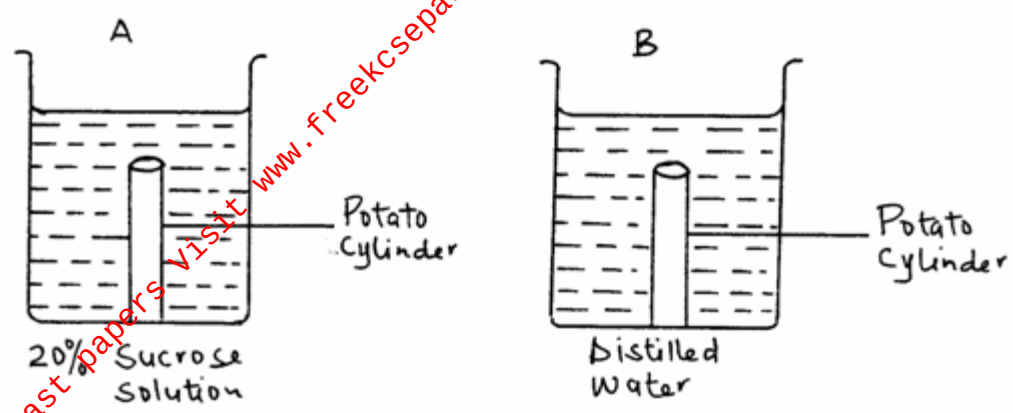
(a) Name the counting method described above. (1mk)

(b) Calculate the approximate size of weaver bird in the woodland. (2mks)

(c) State **one** assumption made during investigation. (1mk)

21. Explain continental drift as an evidence of evolution. (3mks)

22. Two potato cylinders were trimmed to the same size and were placed in two different solutions as shown below.



(a) Identify the process being investigated. (1mk)

_____

(b) Explain the observations made after 30 minutes. (3mks)

_____

_____

_____

_____

23. (a) Below is a list of organisms which belong to different classes. Complete the table by naming the classes. (3mks)

	Class	Organism
(i)		Bird
(ii)		Centipede
(iii)		Fish

(b) Define a species. (1mk)

_____

_____

_____

(c) Name the causative agent of gonorrhea. (1mk)

_____

24. (a) Name **two** hormones involved in metamorphose in insects. (2mks)

_____

_____

(b) State **one** importance of each of the following in germination of seeds.

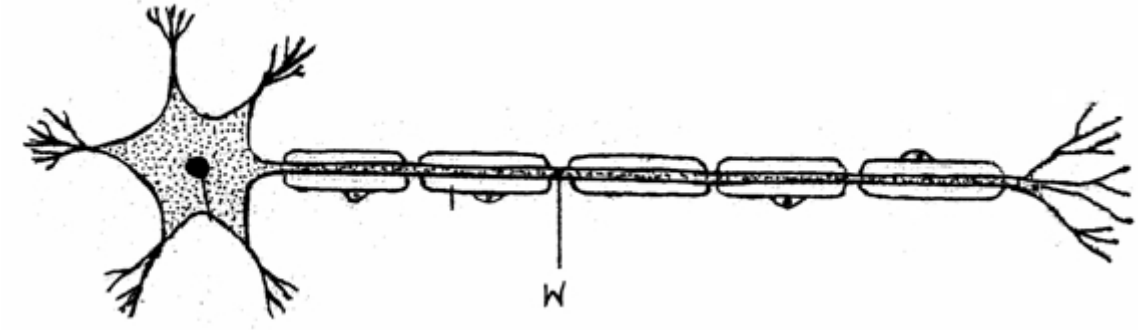
(i) Water. (1mk)

(ii) Oxygen. (1mk)

(iii) Optimum temperature. (1mk)

25. State **three** modifications of stomata of xerophytes. (3mks)

26. The diagram below represents a neurone.



(a) Identify the neurone above. (1mk)

(b) State the function of part labelled **W**. (1mk)