

CENTRAL KENYA NATIONAL SCHOOLS JOINT MOCK - 2016

231/1

BIOLOGY

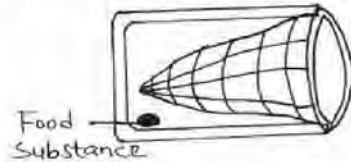
PAPER 1

(THEORY)

JULY/AUGUST, 2016

TIME: 2 HOURS

1. Study the diagram below and answer the questions that follow:

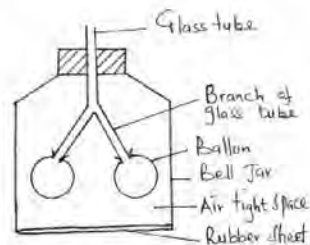


- (a) Identify the above apparatus. (1mk)
- (b) State the function of the above apparatus. (2mks)
- (c) Name an apparatus that can be used for catching insects on barks of trees or rock surfaces. (1mk)
- (d) Name the branch of Biology that deals with the study of birds. (1mk)

2. The table below shows organisms in a given habitat.

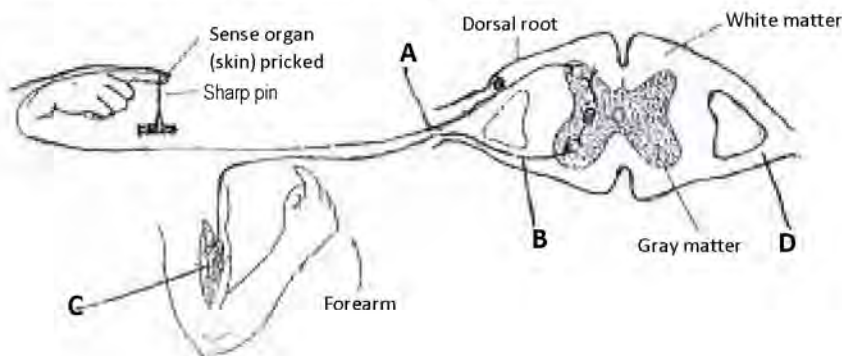
Organism	Number
Small fish	75
Algae	1942
Mosquito larvae	1200
King fisher	10
Water weed	1695
Water snail	75

- (a) Calculate the total number of producers. (1mk)
 - (b) Name the organisms that could be both primary and secondary consumers. (1mk)
 - (c) Name the process through which energy from the sun is incorporated in the ecosystem. (1mk)
 - (d) State why decomposers are not included in the food chain. (1mk)
3. What is nitrogen fixation? (1mk)
4. Study the diagram and use it to answer the questions that follow.



Mention the equivalent of the following in the mammalian breathing system.

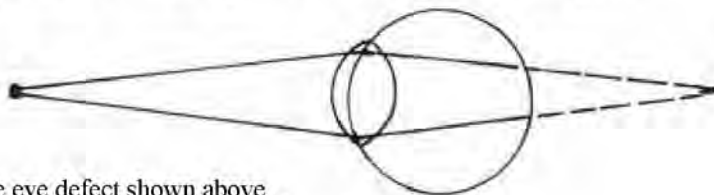
- (a) Bell jar..... (1mk)
 - (b) Balloon..... (1mk)
 - (c) Rubber sheet..... (1mk)
5. Name the structure for gaseous exchange in
- (a) Tadpole (1mk)
 - (b) Grasshopper..... (1mk)
6. The diagram below shows a transverse section of a spinal cord.



(4mks)

Name the parts labelled A – D.

7. The diagram below shows the point of focus of light from an object.



(1mk)

Name the eye defect shown above.

8. Below is a diagram of a human tooth.



(1mk)

(a) Identify the type of the tooth.

(1mk)

(b) State the function of the above tooth.

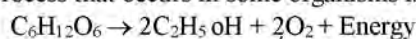
9. (a) State **two** modes of heterotrophic nutrition by which organisms obtain their food.

(2mks)

(b) Explain why emulsification is not a chemical digestion.

(1mk)

10. A process that occurs in some organisms is represented by the equation below.



K

(1mk)

(a) Name the process.

(1mk)

(b) State the name of the compound K.

(2mks)

(c) State the economic importance of the above reaction in Kenyan industries.

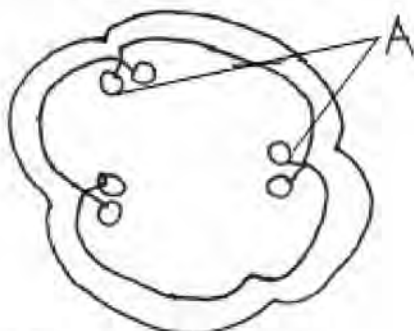
11. State the significance of respiratory quotient (RQ).

(1mk)

12. What is the importance of laying eggs in long strands of slippery jelly-like substance in animals that exhibit external fertilisation.

(3mks)

13. Below is across section of a fruit.



(1mk)

(a) Name the type of placentation shown.

(1mk)

(b) Identify the parts labelled A.

14. Explain why athletes practicing at high altitude zones have a higher number red blood cells than those at sea level.

(2mks)

15. Name the blood vessel that transports blood;

(1mk)

(a) From small intestines to the liver.

(1mk)

(b) To the ileum.

16. Name the tissue in plants that is responsible for transport of carbohydrates.

(1mk)

17. Give **one** structural difference and similarity between a mitochondrion and a chloroplast.

(2mks)

18. What is the function of the following parts in a microscope?

(2mks)

(a) Condenser.

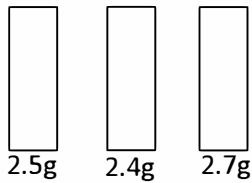
(b) Diaphragm.

19. What is the importance of fixation in preparation of temporary slide?

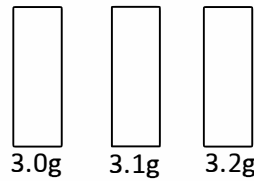
(1mk)

20. What is the significance of seed dormancy? (3mks)
 21. State **two** advantages of metamorphosis to the life of an insects. (2mks)
 22. Potato cylinders were weighed and kept in distilled water overnight. They were then reweighed.

At the beginning



At the end



- (a) Calculate the average mass of the potato cylinders at the end of the experiments. (Show your working). (2mks)
 (b) Explain why the mass of the cylinders had increased. (3mks)
 23. Explain why the garden pea plant was preferred by Gregor Mendel in his crossing experiments. (3mks)
 24. Give **two** structural differences between DNA and RNA molecules. (2mks)
 25. Name **two** substances that are excreted through diffusion process in plants. (2mks)
 26. (a) Arrange the following nitrogenous waste products in order of decreasing toxicity: urea, uric acid and anuria. (1mk)
 (b) Explain why desert animals excrete their nitrogenous wastes in form of uric acid. (1mk)
 27. Name **one** waste product that is transported in the blood but not removed by the kidneys. (1mk)
 28. A student collected a plant with the following features:
 - Vascular bundles in the stem were scattered with no cambium.
 - Fibrous root system.
 Name the sub-division and the class to which the above plant belonged. (2mks)
 Sub-division
 Class
 29. Write the kingdoms to which the following organisms belong. (3mks)
 Plasmodium
 Bat
 Yeast
 30. The wings of a bird and that of insects are analogous structures.
 (a) What are analogous structures? (2mks)
 (b) Name this type of evolution. (1mk)
 31. Name a vestigial structure found in:
 (a) Man. (1mk)
 (b) Whale. (1mk)
 32. (a) Name the hard body covering found in organisms of the phylum arthropoda. (1mk)
 (b) Give **two** uses of the structure mentioned in (a) above. (2mks)