NAME: ……………………………….…. INDEX NO: …………………………….

SIGNATURE: ………………………….… DATE : …………………………….…..

231/1
BIOLOGY
PAPER 1
JULY / AUGUST 2014
TIME: 2 HOURS

NANDI CENTRAL DISTRICT JOINT MOCK 2014

Kenya Certificate of Secondary Education (K.C.S.E.)
BIOLOGY
PAPER 1
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

(a) *Write your name and Index Number in the spaces provided.*

(b) *Sign and write the date of examination in the spaces provided.*

(c) *Answer ALL questions in the spaces provided.*

(d) *Wrong spelling especially of technical terms will be penalized.*

FOR EXAMINER'S USE ONLY

QUESTION	MAX. SCORE	CANDIDATE SCORE
1 – 29	80	

1

1. State the functions of each of the following organelles.

   (i) Ribosomes (1mk)

   ……………………………………………………………………………………………………

   (ii) Golgi apparatus (1mk)

   ……………………………………………………………………………………………………
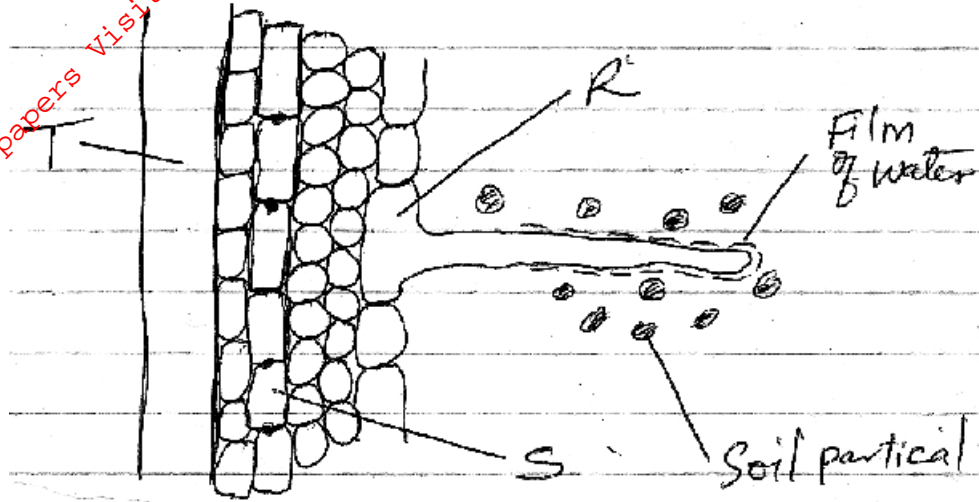
2. The diagram below represents the pathway of water from soil into the plant.

   (a) Name the structures labeled T and S.

   T:…………………………………………………………………………………(1mk)

   S:…………………………………………………………………………………(1mk)

   (b) State **two** ways in which the structure labeled R is adapted to its functions.

   (2mks)

   ……………………………………………………………………………………………

   ……………………………………………………………………………………………

3. A student added equal amounts of blood to equal volumes of salt of different concentrations. She observed and counted the red blood cells at the beginning of the experiment and at end of the experiment. The results were as shown:-

Set up	Concentration of salt	Beginning	After 30 mins
A	0.1mol	500	500
B	0.01mol	500	250

   Account for the results in:

   (a) Set up A (2mks)

   ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

   (b) Set up B (2mks)

   ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

4. Below is a dental formula of certain organisms. Use it to answer the questions that follow.

$I\ ^0/_3$,　　　　$C\ ^0/_1$,　　　　$PM\ ^3/_2$,　　　　$M\ ^3/_3$

(i) Calculate the total number of teeth in the mouth of the organisms. (2mks)

(ii) Name the organisms. (1mk)

…..……………………………………………………………………………………

(iii) Identify the mode of nutrition of the organisms. (1mk)

………………………………………………………………………………………

5. (a) Give a reason why glucose does not normally appear in urine even though it is filtered in mammalian Bowman's capsule. (2mks)

………………………………………………………………………………………

………………………………………………………………………………………

(b) Which hormones are involved in the salt-water balance in human body? (2mks)

………………………………………………………………………………………

………………………………………………………………………………………

6. State **two** precautionary measures to control the outbreak of cholera. (2mks)

………………………………………………………………………………………

………………………………………………………………………………………

7. The diagram below shows a mature embryo sac of a flowering plant.
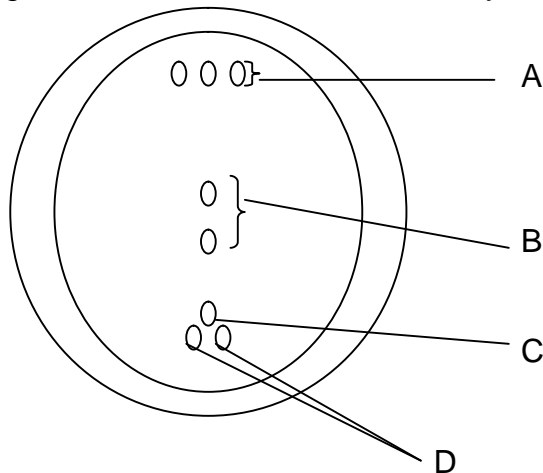
(a) Name the Parts: (2mks)

(i) A:…………………………………………………………………………

(ii) D:………………………………………………………………………...

(b) What is the function of the structure labeled B? (1mk)

………………………………………………………………………………………

8. The diagram below represents part of the human digestive system.
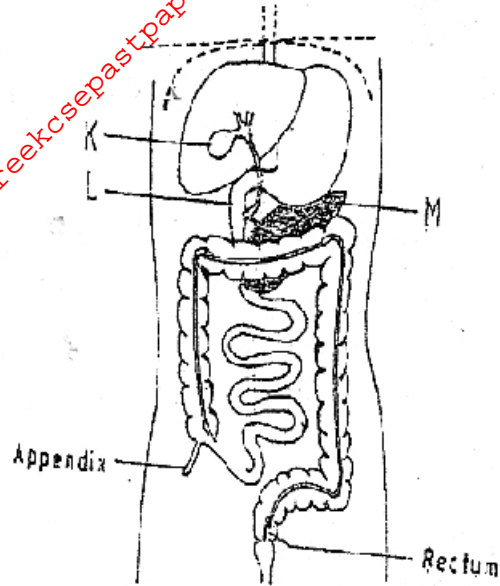
Name the organs labeled L and M. (2mks)

L:…………………………………………………………………………………………

M:………………………………………………………………………………………..

9. What is meant by the following terms?

(a) Ecology (1mk)

……………………………………………………………………………………………

……………………………………………………………………………………………

(b) Carrying capacity (1mk)

……………………………………………………………………………………………

……………………………………………………………………………………………

10. Explain why individuals with smaller body sizes requires more energy per kg of body weight than those with large body sizes. (3mks)

……………………………………………………………………………………………

…………………………………………………………………………………………..

11. Explain how each of the following serves as evidence for evolution.

(i) Fossil records. (2mks)

……………………………………………………………………………………………

……………………………………………………………………………………………

(ii) Comparative embryology. (2mks)

……………………………………………………………………………………………

……………………………………………………………………………………………

12. Give **two** differences between skeletal and smooth muscles. (2mks)

    ………

    ………

13. (a) State **two** characteristics of the Kingdom Monera that are not found in other

    Kingdoms. (2mks)

    ………

    ………

    (b) Name the class to which a termite belongs. (1mk)

    ………

14. State **one** way in which aerenchyma tissues in aquatic plants are adapted to their

    function. (1mk)

    ………

    ………

15. (a) State **two** functions of the blood other than transport. (2mks)

    ………

    ………

    (b) Name **one** defect of the circulatory system in humans. (1mk)

    ………

16. Give an example of a moveable joint in humans. (1mk)

    ………

17. (a) Define the term natural selection as used in evolution. (2mks)

    ………

    ………

    ………

    (b) State **two** examples of natural selection in action. (2mks)

    ………

    ………

18. (a) Name the carbohydrate that is stored in Mammalian muscles. (1mk)

    ………

    (b) List down **two** differences between polysaccharides and Monosaccharides.(2mks)

Polysaccharides	Monosaccharides
………………………………………	………………………………………
………………………………………	………………………………………
………………………………………	………………………………………
………………………………………	………………………………………

19. Describe how the following parts of the mammalian ear are adapted to their functions

    (a) Pinna   (1mk)

    ....

    ....

    (b) Tymphanic Membrane   (1mk)

    ....

    ....

20. (a) State **two** ways in which human body is naturally protected against harmful

   bacteria.   (2mks)

    ....

    ....

    (b) State **one** way in which the composition of blood in the pulmonary artery and that

    of pulmonary vein differ.   (1mk)

    ....

21. Describe the path taken by Carbon (iv) Oxide released from the tissues of a

    cockroach into the atmosphere.   (2mks)

    ....

    ....

    ....

22. Form One student set up an experiment shown below to investigate a certain

    physiological process. The set up was left for 30 minutes.
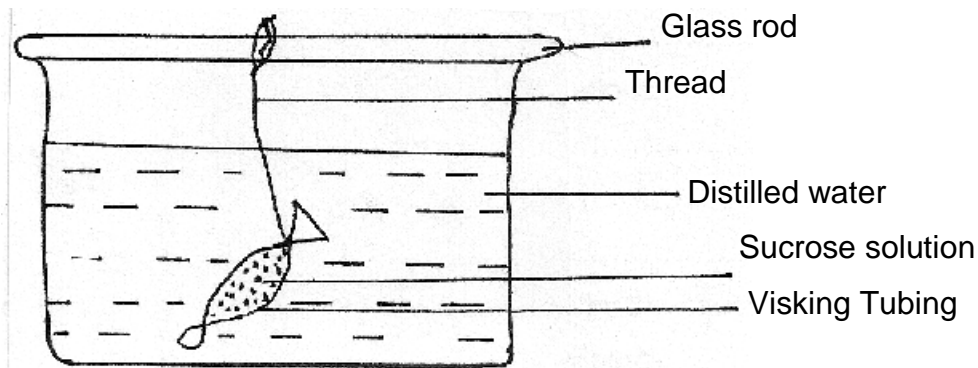
    (a) Name the process under study.   (1mk)

    ....

    (b) State the expected results after 30 minutes.   (1mk)

    ....

    (c) Explain your answer in (b) above.   (3mks)

    ....

    ....

    ....

23. (a) Give another name of the oviduct. (1mk)

....

(b) Name the hormone responsible for production of milk after perturation. (1mk)

....

24. Below is an example of a food chain.

Nappier grass ⟶ Mouse ⟶ Snake ⟶ Hawk
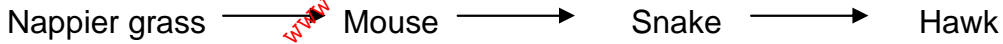
Identify the trophic level occupied by:

(a) (i) Nappier grass (1mk)

....

(ii) Hawk (1mk)

....

(b) What would happen if snakes are removed from the food chain? (2mks)

....

....

25. (a) Define the term mutation. (1mk)

....

(b) Name **two** sex-linked traits in humans attached to Y-chromosomes. (2mks)

....

....

26. Explain why athletes train in high altitudes in preparation for competition. (2mks)

....

....

27. Briefly describe **three** characteristics of populations. (3mks)

....

....

....

28. A process that occurs in plants is represented by the equation.

$$C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + CO_2 + Energy$$
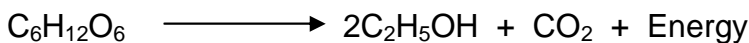
Name the above process. (1mk)

....

29. State **two** beneficial effects of transpiration to a plant. (2mks)

....

....