**Name……** **Index No. …….**

**School ……...**

**231/1**
**BIOLOGY**
(THEORY)
**PAPER 1**
**JULY / AUG. 2007**
**2 HRS**

# NANDI NORTH DISTRICT MOCK EXAMINATION-2007

Kenya Certificate of Secondary Education (K.C.S.E)

**231/1**
**BIOLOGY**
(THEORY)
**PAPER 1**
**JULY / AUG. 2007**
**2 HRS**

**INSTRUCTIONS TO CANDIDATES**

Answer ALL questions in the spaces provided

***For Examiner's Use Only.***

| Question | Maximum Score | Candidate's score |
|---|---|---|
| 1 – 33 | 80 | |

*This paper consists of 12 printed pages.*
*Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing*

1. State **two** functions of the substance secreted by sebaceous glands. (2mks)

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2. Name the regions in plants where the following take place. (2mks)

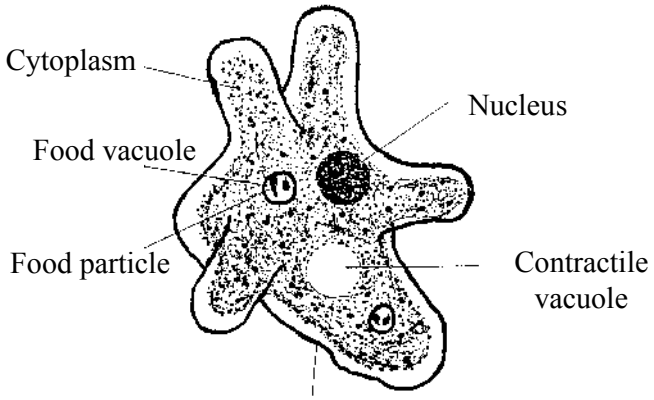
(i) Primary growth.

……

(ii) Secondary growth

……

3. A student observing a drop of water under the high power objective of a microscope observed an organism and drew the following diagram.




a) Suggest the kingdom to which the organism belongs. (1mk)

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b) Identify the organism. (1mk)

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c) Give one example of a disease caused by the organism. (1mk)

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4. The figure below illustrates a portion of chromosome with genes A,B,C,S,Q and R.

| A | B | C | S | Q | R |
|---|---|---|---|---|---|

Using diagrams similar to the one above, illustrate the changes that the above chromosome would undergo if the following mutations occurred on gene C and S.

(a) Deletion (1mk)

(b) Duplication (1mk)

5. a) Name the type of skeleton that insects have. (1mk)

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b) What substance is the insect skeleton made of? (1mk)

6. In an experiment, the pituitary gland of a rat was removed.

a) State the effect this will have on the quantity of urine produced by the rat. (1mk)

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

……

7. State **two** ways by which plants compensate for their lack of ability to move from one place to another. (2mks)

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8. The lungs and ileum are adapted for absorption. State **three** features they have in common which facilitate absorption. (3mks)

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9. State the function of the diaphragm in the light microscope. (1mk)

10. In view of modern genetics, explain why Lamarckian theory is unacceptable. (2mks)

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11. How has genetic engineering helped in the field of medicine? State two ways. (2mks)

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12. Collenchyma cells remain strong and maintain their shape even when completely dry. Explain. (1mk)

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13. Distinguish between divergent and convergent evolution. (2mks)

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14. A tall garden pea plant crossed with a dwarf one produces offsprings of which, about half are tall and the other half are dwarf. What are the genotypes of the parents? (2mks)

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……

15. What is the functional difference between a tendon and ligament. (1mk)

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16. a) How is the fovea centralis adapted for its function in the human eye. (1mk)

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b) A person was not able to see far objects clearly but could view near objects clearly. Name the eye-defect the person had. (1mk)

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c) How can the defect be corrected. (1mk)

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17. Explain why food is stored in an insoluble form in the cells of living things. (1mk)

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18. Name **two** components of blood that are not present in the glomerular filtrate. (2mks)

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19. State **two** characteristics of skeletal muscles. (2mks)

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20. State **two** functions the cell organelle that contains chlorophyll in plants. (2mks)

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21. State **three** differences between osmosis and active transport. (3mks)

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22. a) State the importance of the following features in gaseous exchange.

(i) Cartilage in the trachea (1mk)

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(ii) Moisture on the surface of alveoli. (1mk)

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b) Name **two** sites where gaseous exchange takes place in terrestrial plants. (2mks)

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23. Explain how the following adaptations minimize the rate of transpiration.

a) Sunken stomata. (1mk)

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b) leaf drooping. (1mk)

c) State **two** environmental factors that influence the rate of transpiration. (2mks)

24. State the role of decomposers in an ecosystem. (1mk)

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25. State **three** advantages of asexual reproduction in organisms. (3mks)

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26. a) Name a blood vessel that starts and ends as capillaries outside the liver. (1mk)

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b) Name the blood vessel that has blood with the highest concentration of carbon (IV) oxide. (1mk)

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

$C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2 + Energy$

Glucose (Ethanol) (Carbon (IV) oxide)

a) Name the process. (1mk)

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b) State the importance of the process to living organisms. (1mk)

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……

c) Name the products of a similar process in animals. (1mk)

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28. a) State the functions of the stomach in mammals. (3mks)

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b) What food substance would be found in the villi of an animal after a meal of boiled potatoes. (1mk)

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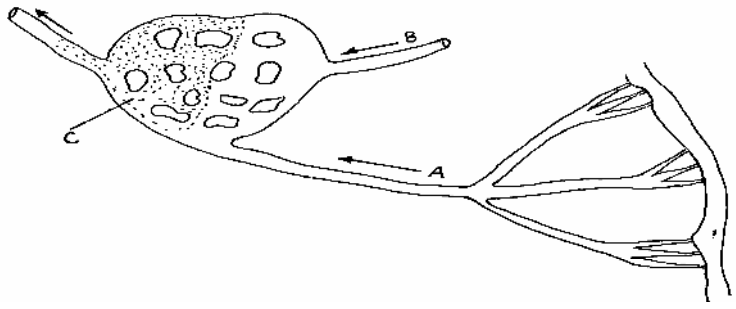
29. The diagram below shows a part of a circulatory system. The arrows indicate the direction of movement of blood.




Ileum

a) Name the blood vessels A and B. (2mks)

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b) Explain why it is important to transport food substances to organ C before being circulated to the rest of the body. (2mks)

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30. Define the following terms used in ecology. (4mks)

(i) Biosphere

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(ii) Population

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(iii) Synecology

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(iv) Carrying capacity

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31. State the functions of vitamins in animals. (3mks)

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32. The diagram shows a metabolic pathway in which substrate A is converted with the aid of enzymes to end product D.

A $\xrightarrow{\text{Enzyme 1}}$ B $\xrightarrow{\text{Enzyme 2}}$ C $\xrightarrow{\text{Enzyme 3}}$ D

a) Suggest what would happen to the rate of production of end product D;

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(i) If the concentration of substrate A was reduced. (1mk)

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(ii) the concentration of Enzyme 1 was increased. (1mk)

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b) State **two** other factors that would affect the rate of production of D in the above process. (2mks)

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33. State the importance of osmoregulation in organisms. (2mks)

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