ALLIANCE HIGH SCHOOL

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

CLASS..... CANDIDATE'S SIGN..... DATE.....

BIOLOGY 231/1

TIME: 2 HOURS

PRE-TRIALS 2015 MAY

INSTRUCTIONS TO CANDIDATES:

- *Write your **name** and **index number** in the spaces provided.*
- *Sign and write **date** of examination in the spaces provided above*
- *Answer **all** the questions in this paper in **ENGLISH***
- *ANY unnecessary information will lead the candidate to be penalised*

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1- 30	80	

Kenya Certificate of Secondary Education (K.C.S.E.) *This paper consists of 8 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing*

1. State three ways by which the gills of the bony fish are adapted for their functions (3mks)

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2. State three features in the insect pollinated flowers that encourage cross pollination

..... (3mks)

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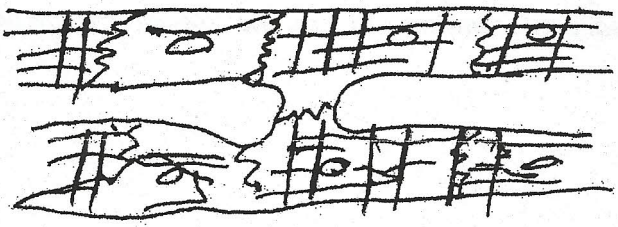
3. Study the diagram below and answer the questions that follow.



(a) Name the type of muscle shown in the diagram (1mk)

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(b) State the part of the mammalian body where the above muscle is found (1mk)

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4. (a) Give the difference between primary growth and secondary growth (1mk)

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(b) (i) What is intermittent growth (1mk)

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(ii) State one phylum in the kingdom Animalia where its members exhibit intermittent growth..... (1mk)

5. Explain why the removal of a placenta from the walls of the uterus before birth would result in the death of the foetus. (2mks)

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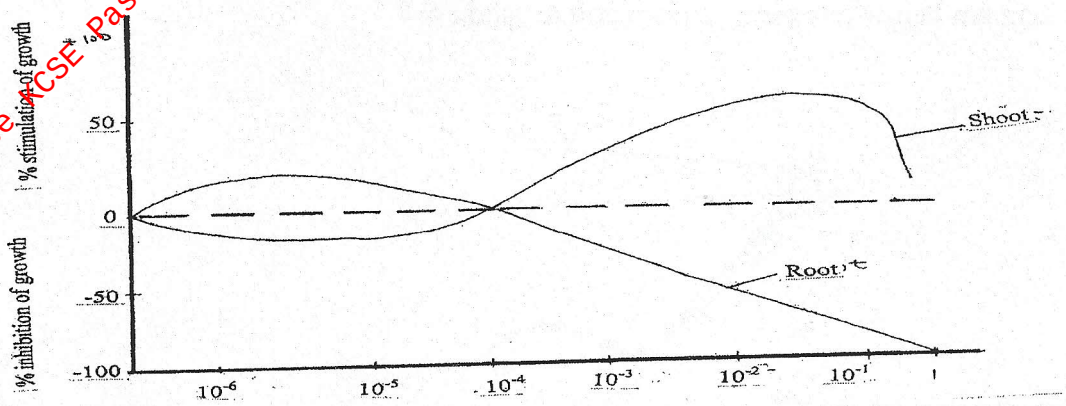
6. Study the diagram below which shows the effect of auxin concentration on the rate of growth in a plant



Auxin concentration

a)Which part of the plant shows increased growth at lower auxin concentration (1mk)

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(b) State the relationship between auxin concentration and the rate of growth in

(i) Shoot (1mk)

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(ii) Root (1mk)

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c) State the importance of etiolation in plants (1mk)

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7. Define genetic engineering (2mks)

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8. The equation below represents a metabolic process that occur in the mammalian liver

$$\text{Amino acids} \xrightarrow{\text{Enzyme X}} \text{Organic compound + Urea}$$

(a) Name the process represented above..... (1mk)

(b) Identify enzyme X..... (1mk)

(c) State the importance of the above process in the animal (1mk)

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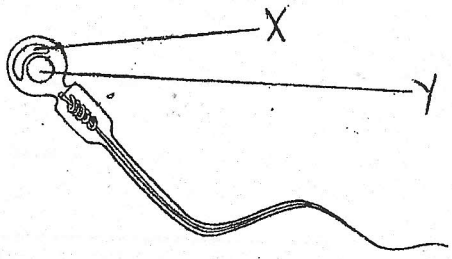
9. The diagram below represents a mammalian sperm cell



(a) Name the part labelled Y (1mk)

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b) Explain what happens to the part labelled X during fertilization (2mks)

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10. State the significance of the following features in the human trachea

(i)Rings of cartilage (1mk)

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(ii)Presence of cilia (1mk)

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11. State three roles of a DNA in a cell (3mks)

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12. Differentiate between divergent and convergent evolution (2mks)

divergent evolution	convergent evolution

13. State two adaptations of herbivores which enable them to digest cellulose. (2mks)

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14a) Name the property that enables lipids to be stored in tissues of organisms (1mk)

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(b) State two reasons why a camel stores large fat reserves in its body (2mks)

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15. a) Name the type of skeleton found in

(i) Tilapia fish..... (1mk)

(ii) Earthworm..... (1mk)

b) Differentiate between tendon and ligament (2mks)

Tendon	Ligament

16. State two organelles absent in members of kingdom monera but present in members of Kingdom protoctista (2mks)

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17. What is the significance of chiasma formation during meiotic cell division (1mk)

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18. State three functions of mammalian blood (3mks

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19. Name a supportive tissue in plants thickened with (2mks)

(i) Cellulose.....

(ii) Lignin.....

20.a) In actively photosynthesising cells, the sugars formed are quickly converted to starch. What is the biological advantage of the above reaction (1mk)

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b) State one structural adaptation of stroma to its function (1mk)

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21. Counter current flow in fish is advantageous rather than parallel flow. Explain. (2mks)

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22 a) what is seed viability (1mk)

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(b) State two conditions which may lead to loss of viability in a seed (2mks)

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23. State two functions of ear pinna (2mks)

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24.a) Name the cell organelle that performs the following functions in a cell

(i) Stores enzymes..... (1mk)

(ii) Synthesis of ribosomes..... (1mk)

b) State three properties of plasma membrane (3mks)

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25. Study the table below and fill in the spaces (2mks)

Plant Excretory product	Economic use
Papain	
	Used in leather industry to treat hides and skin

26.a) Name part of the brain that controls breathing movements (1mk)

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b) Name two causative agents of tuberculosis (2mks)

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27a) Define the term Antiserum (1mk)

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b) Name the compound released when white blood cells burst due to antibody- antigen reaction on their surfaces

..... (1mk)

28. State two characteristics of a spiracle located on insect's body (2mks)

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29. a) Define the term Biological control (1mk)

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b) Give two examples in a) above (2mks)

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30.a) Name two main types of joints found on the mammalian skeleton (2mks)

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b) Differentiate the joints mentioned in (a) above (1mk)

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31(a) State functional difference between motor neurone and sensory neurone (1mk)

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(b) Define the term neuromuscular junction (1mk)

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