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231/1  
BIOLOGY  
PAPER 1  
(THEORY)  
AUGUST- SEPT, 2022  
2 HOURS

## LANJET EXAMINATION 2022

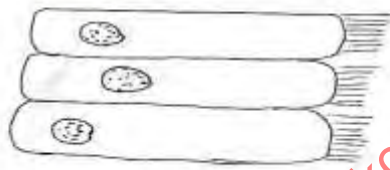
*Kenya Certificate of Secondary Education (K.C.S.E)*

### INSTRUCTIONS TO CANDIDATES

- ✓ Write your name and Index Number in the spaces provided above.
- ✓ Answer ALL questions in this paper.

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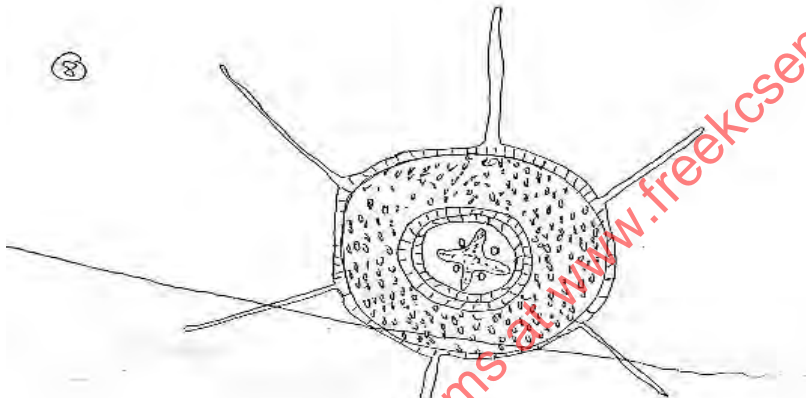
1. Explain why:
  - (a) Red blood cells burst when placed in distilled water while plant cells remain intact. (2mks)
  
2. State why the following processes are essential in living organism.
  - (a) Irritability (1mk)
  
  - (b) Respiration (1mk)
  
3. The diagram below shows a type of epithelial tissue.



- (a).What is the name of the hair-like processes (1mk)
  
- (b).What is the function of the hair-like processes? (1mk)
  
- (c).Name two mammalian organs where this type of epithelium is found. (2mks)

4. Differentiate between a competitive and non- competitive enzyme inhibitors. (2mks)

5. What is the importance of photosynthesis in nature? (2mks)
6. Explain what happens to glucose formed by photosynthesis in a dicotyledonous leaf. (2mks)
7. A patient whose blood group A died shortly after receiving blood from a person of blood group B. Explain the possible cause of death of the patient. (3mks)
8. The diagram below is a transverse section of a certain part of a plant.



- (a). Which part of the plant was the section made from (1mk)
- (b). Give a reason for your answer in (a) above (2mks)
9. Explain why water logging of the soil may lead to death of plants. (2mks)

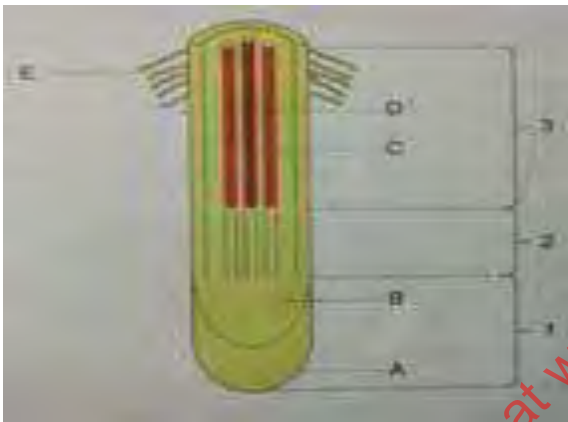
10. Explain why smokers are more prone to respiratory tract infections than non-smokers. (2mks)
11. (a) In mammals haemoglobin is confined to red blood cells. Give two advantages of this (2mks)
- (b) The blood of insects does not contain an oxygen carrying pigment. Give an explanation for this. (2mks)
12. In a man, aerobic breakdown of glucose yields 2880kj- of energy whereas anaerobic breakdown yields 150kj-. Give an explanation to account for this difference. (3mks)
13. Give any two excretory organs in mammals and name the substrate they excrete. (2mks)
14. Name two classes of animals that excrete
- a) Nitrogenous waste products mainly in the form of uric acid. (2mks)
- b) Give two advantages of excreting nitrogenous waste products in the form of uric acid as compared to urea. (2mks)

15. What are the excretory organs of insects (1mk)
16. Insects are found in almost all parts of the world. List three features that make them very successful animals. (3mks)
17. Explain why only a small part of the food materials taken up by herbivores is passed on to secondary consumers. (3mks)
18. Explain the following terms. (2mks)
- (a) Nitrifying bacteria.
- (b) Nitrogen fixing bacteria.
19. Explain why petals and sepals are referred to as the accessory parts of a flower. (2mks)
20. If the ovaries of a woman are removed during the first four months of pregnancy miscarriage is very likely to occur. However if they are removed after the fourth monthly pregnancy an proceed normally. Explain (3mks)
21. Animals with external fertilization product large number of eggs whereas those with internal fertilization produce fewer eggs. Suggest an explanation for this differences. (3mks)

22. State the difference between the composition of foetal blood entering the placenta (2mks)

23. Man hammered a nail two meters from the ground surface in the stem of a ten metres tall tree. Two years later, the tree had grown taller and thicker. Explain where would expect to find the nail. (2mks)

24. The cells shown below were obtained from different parts of a young root tip. Give the name of the zone from which each cell was obtained. (3mks)



25. The letter (A) and (a) represent the dominant and recessive genes for a particular trait respectively. Write down the genotype of the following: (3 marks)

a) Homozygous dominant

b) Heterozygous dominant

c) Homozygous recessive

26. Write reference to the inheritance of genetic defects

a) Explain what a carrier is.

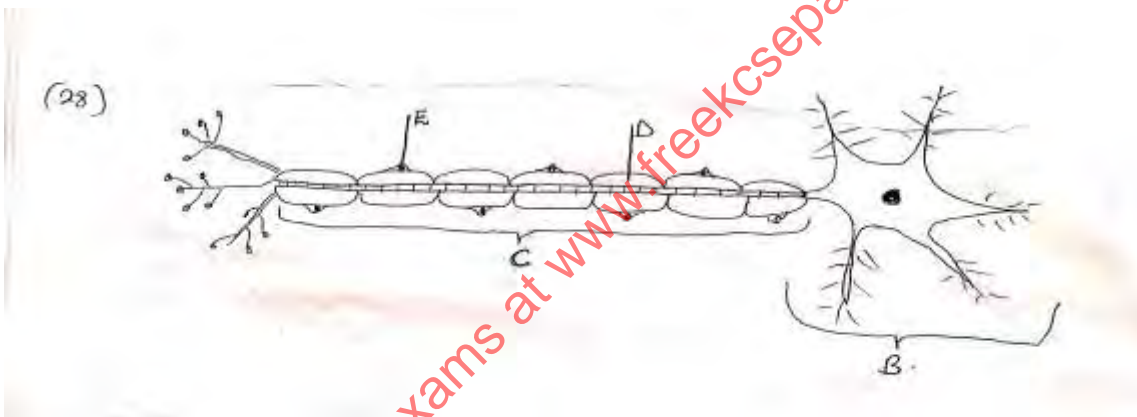
(1mk)

b) Hemophilia is more common in men than in woman. Suggest reasons to account for this. (2mks)

27. a) What is meant by natural selection? (2mks)

(b) In what way does Lamarck's theory fail to agree with modern scientific evidence? (1mk)

28. The diagram below shows the structure of a neurone. Study it and answer questions below.



a) Name the type of neurone

(1mk)

b) Name the parts labelled

(2mks)

D-

E-

c) State whether the axon of this neurone transmit impulses away from the cell body or towards the cell body. (1mks)

29. In what ways do plants compensate for their inability to move? (2mks)

30. Distinguish between tendons and ligament (2mks)

31. Name the following organelle according to the flowing functions. (2mks)

i) That synthesis protein

ii) That synthesis ATP

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