

Name..... Adm. No..... Index No.....

231/1

Biology Paper 1

2 HOURS

July/August 2018

LANY ACHIEVERS FORM 4 EXAMINATION 2018

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

**Instructions to candidates.**

- Write your name, admission number and index number in the spaces provided.
- Answer all questions in this paper.
- Answers must be written in the spaces provided.
- Additional papers must not be inserted.
- This paper has 10 printed pages

**For Examiner's Use Only**

Question Number	Maximum Score	Candidate's Score
1 - 35	80	

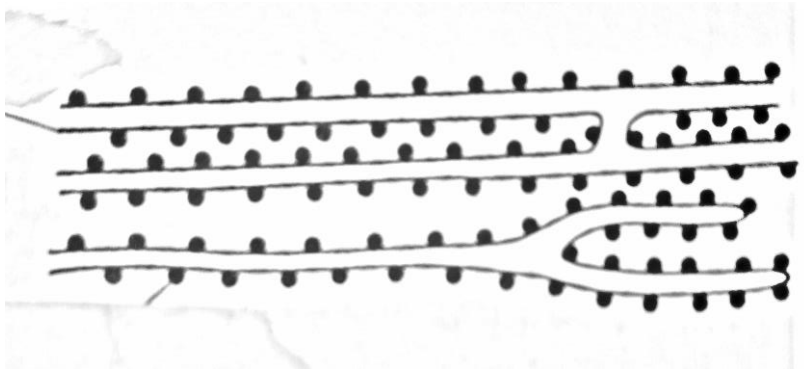
1. What is meant by the term immune response? (1mk)

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2. Name the respiratory surface in amoeba (1mk)

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.....

3. The diagram below represents a cell organelle.



a) Name the cell organelle. (1mk)

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b) How is the cell organelle adapted to its function? (2mks)

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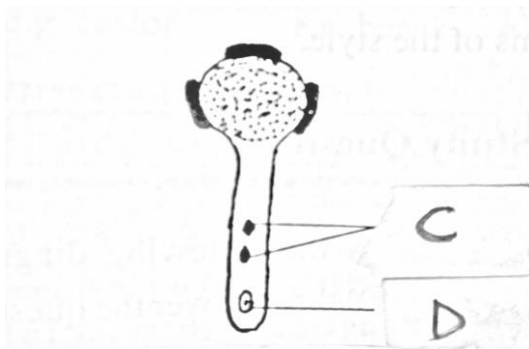
4. a) What is organic evolution? (1mk)

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c) State the importance of fossil records as an evidence for organic evolution. (1mk)

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5. The diagram below represents a germinated pollen grain



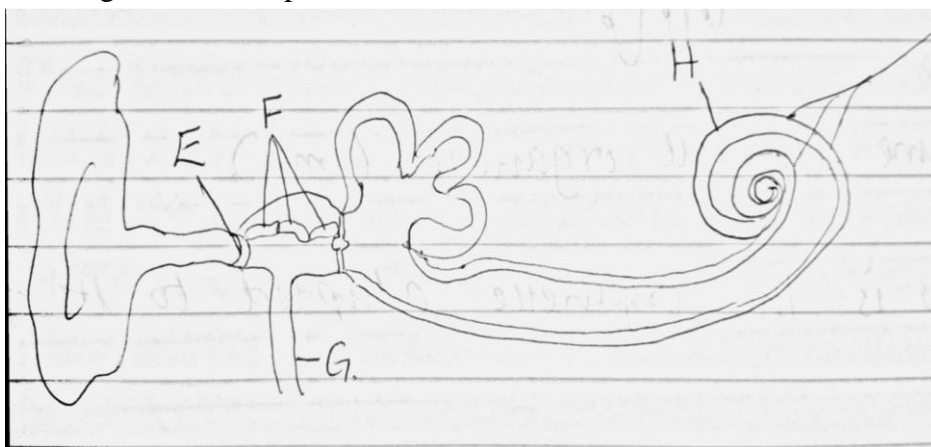
a) Name the structures labeled C (1mk)

.....  
.....

- b) State the function of the part labeled D (1mk)

.....  
 .....

6. The diagram below represents the mammalian ear.



- a) Name the part labeled

E..... (1mk)

F..... (1mk)

- b) State the functions of the parts labeled:

G .....  
 .....  
 (1mk)

H.....  
 .....  
 (1mk)

7. Name one physical process by which mammals lose heat to their surrounding. (1mk)

.....

8. a)What name is given to the study of insects (1mk)

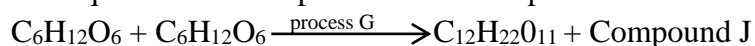
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- b)State the function of the pitfall trap (1mk)

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9. The equation below represents a certain process.

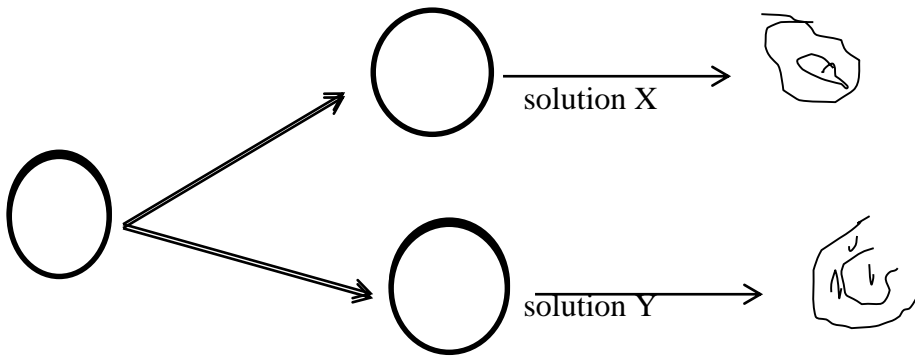


Name the:

- a) Process labeled G.....(1mk)

- b) Compound labeled J.....(1mk)

10. The figure below shows the results obtained when red blood cells were placed in different solutions.

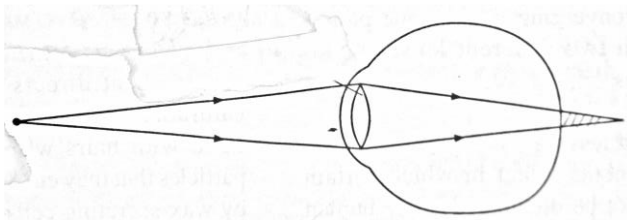


a) What is the name given to the process that occurs when the cells are placed in solution Y? (1mk)

b) Explain the results that would be obtained if a plant cell is placed in solution X (2mks)

11. Describe how ticks develop resistance to acaricides. (2mks)

12. The diagram below illustrates an eye defect in human.

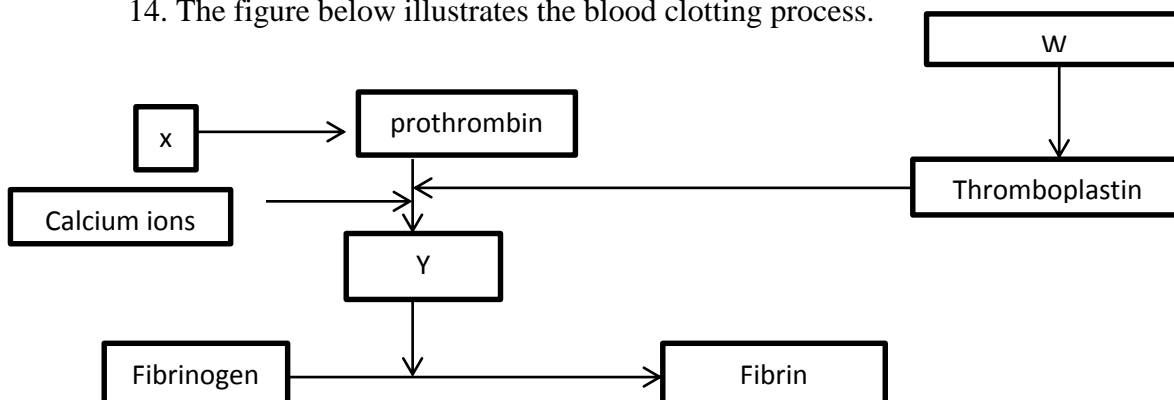


a) Name the defect. (1mk)

b) On the diagram, show how the eye defect is corrected. (1mk)

13. Distinguish between community and population. (2mks)

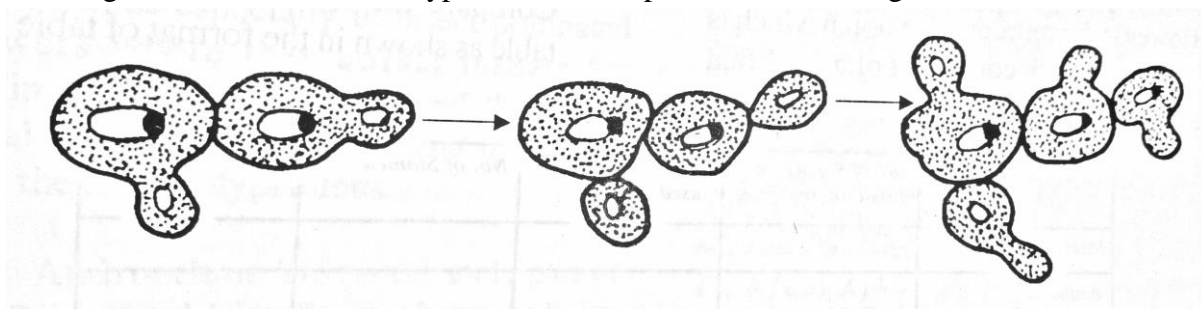
14. The figure below illustrates the blood clotting process.



- a) Name the;
- i) Blood cell labeled W.....(1mk)
  - ii) Vitamin labeled X.....(1mk)
  - iii) Enzyme labeled Y.....(1mk)

- b) Other than blood clotting, give one protective functions of blood.  
(1mk)

15. The diagram below illustrates a type of asexual reproduction in an organism.



Name the type of reproduction.

(1mk)

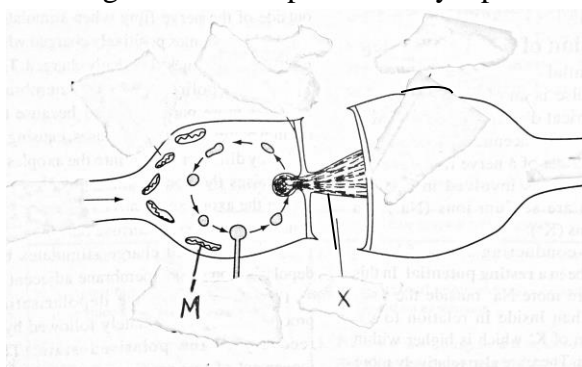
16. In what ways do plants compensate for their inability to move? (2mks)

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 .....  
 .....

17. Name one feature of the small intestine that increases its surface area for digestion of food. (1mk)

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18. The diagram below represents a synapse.



- a) Name the:
- i) Structure labeled M. (1mk)

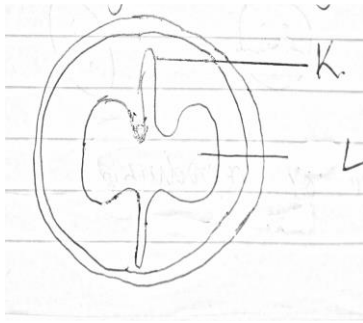
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- ii) Transmitter substance labeled X. (1mk)

.....

- b) On the diagram, show the direction of the nerve impulse transmission. (1mk)

19. Below is a diagram showing a section of a seed.



a) Name the parts labeled:

K.....(1mk)

L.....(1mk)

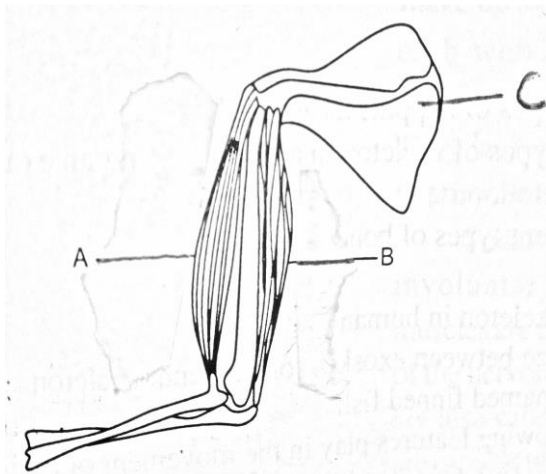
b) What part of the embryo elongates to bring about epigeal germination? (1mk)

.....

20. In the garden pea, the gene for red flower colour is dominant to the gene for white flower colour. A pure breeding red flowered plant was crossed with a white flowered plant.

Using letter R to represent the gene for red flower colour, work out the genotypes of the F<sub>2</sub> offspring (4mks)

21. Study the diagram below.



- a) Name the muscles labeled A and the bone labeled C.

Muscle A.....(1mk)

Bone C.....(1mk)

- b) What would happen to the muscles labeled A and B when the arm is straightened?  
(1mk)

.....  
.....

22. The scientific name for the black jack is *Bidens pilosa*. What taxonomic unit is represented by the name pilosa? (1mk)

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23. a) What is a variegated leaf? (1mk)

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- b) Explain how increase in light intensity affects the rate of photosynthesis. (1mk)

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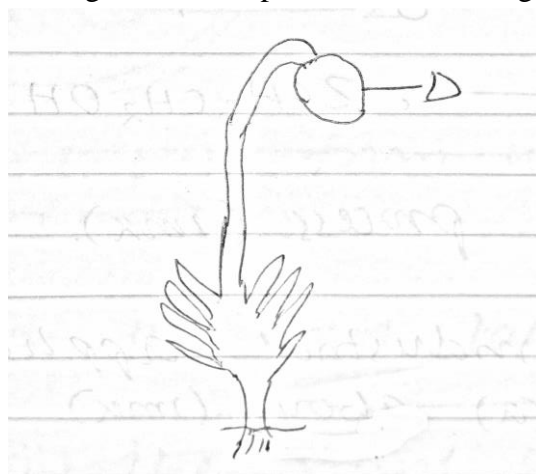
- c) How are the chloroplasts adapted to their functions? (1mk)

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24. State two adaptations of the atlas vertebra to its functions (2mks)

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25. The figure below represents a certain organism.



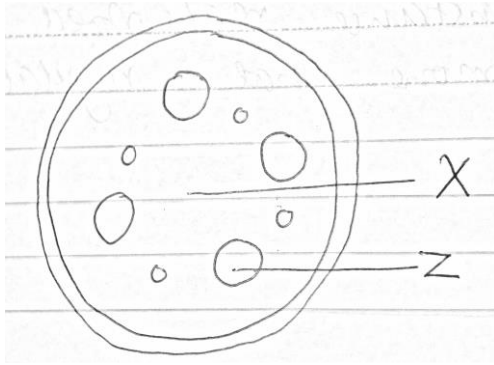
- a) Name:

- i) The division to which the organism belongs (1mk)

- .....
- ii) The part labeled D. (1mk)
- .....
- b) Name one class of Arthropoda whose members have a cephalothorax. (1mk)
- .....
26. Name the type of response exhibited by:
- a) The pollen tube growing towards the ovary. (1mk)
- .....
- b) Maggots moving away from light. (1mk)
- .....
27. How is the alveolus adapted to its function? (1mk)
- .....
28. The equation below represents a certain physiological process.
- $$\text{C}_6\text{H}_{12}\text{O}_6 \longrightarrow 2\text{CH}_3\text{CH}_2\text{OH} + 2\text{CO}_2 + 2\text{ATP}$$
- a) Name the process. (1mk)
- .....
- b) State one industrial application of the process named in (a) above. (1mk)
- .....
- c) What is meant by oxygen debt? (1mk)
- .....
- .....
29. a) Name;
- i) The digestive juice that is produced by the crypts of lieberkuhn. (1mk)
- .....
- ii) One enzyme present in the digestive juice named in (a) above. (1mk)
- .....
- b) Why is pepsin produced in its inactive form? (1mk)
- .....



30. The diagram below illustrates a section obtained from a plant.



a) Name

i) The part labeled X.

(1mk)

.....

ii) The plant organ from which the section was obtained.

(1mk)

.....

b) State the function of the part labeled Z.

(1mk)

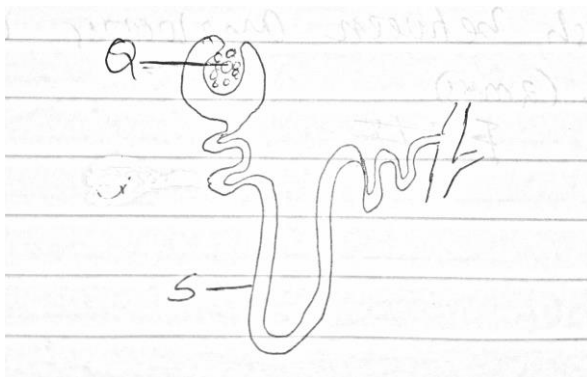
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31. Give the formula used to work out magnification when using a hand lens.

(1mk)

32. The diagram below represents a portion of the kidney nephron.



a) Name the process that takes place at the part labeled Q.

(1mk)

.....

b) Name the substance reabsorbed at S and the hormone that regulates its reabsorption.

i) Substance.....(1mk)

ii) Hormone.....(1mk)

33. Describe how urea is formed in the mammalian liver. (3mks)

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34. Identify the part of the light microscope that performs the following functions.

a) Holds the eye-piece and the revolving nose piece. (1mk)

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b) Brings image into focus and magnifies it. (1mk)

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35. Distinguish between analogous and homologous structures. (2mks)

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