KCSE PRE TRIAL EXAMINATION

March 2019

231/1

Biology

Paper 1

(Theory).

2 hours

Name …… Class……

Admn.no. …… Index No. ……...

Instructions

Answer ALL the above questions in the spaces provided.

This paper consists of **8** Printed pages

For examiner's use only

Question	**Maximum score**	**Candidates score**
1-21	**80**	

1. (a) What is carbonic anhydrase? (2 marks)

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(b) State the role of haemoglobin in the transport of carbon (IV) oxide. (2 marks)

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2. What is the role of light to a lion in the ecosystem? (4 marks)

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3. (a) State the contents of lysosomes. (1 mark)

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(b) State the functions of the contents named in (a) above. (2 marks)

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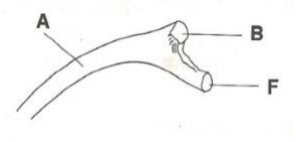
4. (a) The diagram below represents part of a rib.



Name the parts labelled **A**, **B** and **F**. (3 marks)

A…….. …….

B …….

F …….

(b) State the function of the broad facets on the anteriour part of the atlas. (1 mark)

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5. Describe the role played by water in the support of herbaceous plants. (3 marks)

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6. State the role played by the following structures during inhalation:

(a) Diaphragm, (2 marks)

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(b) Intercostal muscles. (3 marks)

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7. (a)Name **two** genetic disorders of blood. (2 marks)

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(b) Define the term backcross. (1 mark)

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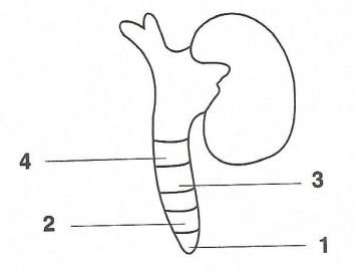
8. The diagram below shows a newly germinated seedling with ink marks 2 mm apart. Study it and answer the questions that follow.



(a)(i) Which region would you expect to be longest after 5 days further growth? (1 mark)

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(ii) Give a reason for your answer in (a)(i) above. (1 mark)

……..

(b) In which regions would you expect root hairs to appear? (1 mark)

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(c) Name the structure that protects the region labelled **I**. (1 mark)

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9.(a) How is high pressure build up in the glomerulus? (1 mark)

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(b) Why is this pressure necessary? (1 mark)

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10. (a) Describe the concentration and volume of urine produced by a person who has been playing soccer on a hot day. (2 marks)

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(b) Explain your answer in (a) above. (3 marks)

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11. (a)(i)Name the process that results in the formation of pyruvic acid in a cell. (1 mark)

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(ii) Name the part of a cell where the process named in (a) above occurs. (1 mark)

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(b) Name the process that utilizes the pyruvic acid from the process named in (a) above. (1 mark)

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12. Name the organelle that performs the following functions in a cell.

(a) Transports cell secretions, (1 mark)

……

(b) Controls materials entering and leaving the nucleus. (1mark)

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(c) Forms cilia and flagella. (1 mark)

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13.(a) Name the structure responsible for intermittent growth in an insect, giving a reason. (2 marks)

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(b) Name a hormone produced by the corpus allatum in insects. (1 mark)

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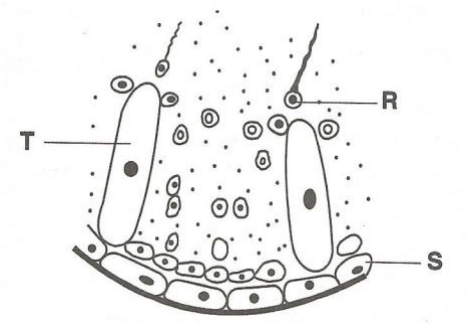
14. The diagram below shows part of a seminiferous tubule.



(a) Name the parts labelled **R**, **S** and **T**. (3 marks)

R ……

S……..

T ……

(b)Name the tube into which the seminiferous tubules open. (1 mark)

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15. State **two** main events that occur at interphase I. (2 marks)

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16. Describe how oxygen from the environment reaches a respiring cell of a terrestrial leaf. (3 marks)

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17. Give **two** reasons why gametes are haploid. (2 marks)

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18. A plastic bottle full of water was stoppered with a piece of stem from a young herbaceous plant, whose epidermis had been peeled off. After 24 hours, it was noted that the stopper closed the bottle tightly. Explain the observation made. (3 marks)

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19. (a) Name the products of the light dependent stage of photosynthesis. (1 mark)

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(b) Explain why some plants such as *Drosera* species trap and digest insects. (3 marks)

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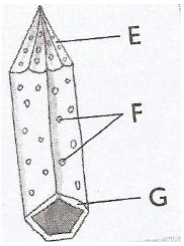
20. The diagram below represents a certain plant structure.



(a) Identify the structure. (1 mark)

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(b) Name the parts labelled **E**, **F** and **G**. (3 marks)

E ……..

F ……...

G ……..…

(c) State **two** functions of the structure. (2 marks)

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21.(a) What are fossils? (1 mark)

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(b) State **two** limitations of the use of fossils as evidence for evolution. (2 marks)

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(c) What is meant by the following terms?

(i) Struggle for existence, (1 mark)

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(ii) Survival of the fittest. (1 mark)

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