Name:..... Index No:...../.....

231/1
BIOLOGY
Paper 1
(THEORY)
Oct./Nov. 2013
2 hours

Candidate's Signature :.....

Date:.....

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
BIOLOGY
Paper 1
(THEORY)
2 hours

Instructions to Candidates

(a) Write your name and index number in the spaces provided above.
(b) Sign and write the date of examination in the spaces provided above.
*(c) Answer **all** the questions.*
(d) Answers must be written in the spaces provided in the question paper.
*(e) Additional pages must **not** be inserted.*
(f) This paper consists of 10 printed pages.
(g) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
(h) Candidates should answer the questions in English.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1 - 30	80	

1 (a) What is meant by the term wilting? (1 mark)

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(b) Explain how an increase in temperature affects the rate of active transport. (2 marks)

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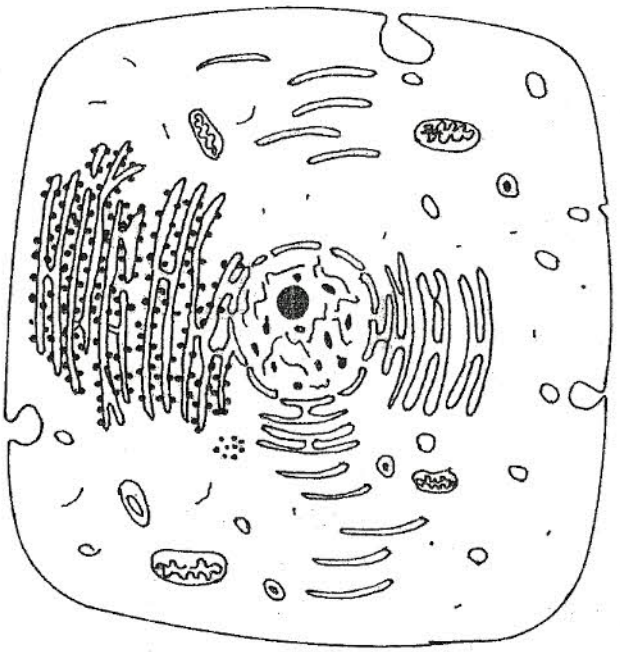
2 The diagram below represents a cell as seen under an electron microscope.



(a) Based on the diagram, state whether it represents an animal cell or a plant cell. (1 mark)

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(b) Give **two** reasons for your answer in 2(a) above. (2 marks)

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(c) Why is the palisade layer a tissue? (1 mark)

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3 (a) State **two** external features found in the class Mammalia only. (2 marks)

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(b) Name the taxonomic unit that comes immediately after a phylum in classification. (1 mark)

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4 (a) State **two** roles of mucus in the stomach. (2 marks)

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(b) Explain how age determines a person's energy requirements. (2 marks)

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5 Describe how turgor pressure builds up. (3 marks)

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6 Using a microscope, a student counted 55 cells a cross a field of view whose diameter was 6000μm. Calculate the average length of the cells. Show your working. (2 marks)

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7 Explain how the following forces contribute to the movement of water up the xylem vessels: (2 marks)

(a) cohesion;

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(b) adhesion;

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8 Construct a step in a dichotomous key using two leaves one with a serrated and the other with a smooth margin. (2 marks)

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9 State **one** way in which each of the following is structurally adapted to its function:

(a) neurone; (2 marks)

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(b) mitochondrion. (2 marks)

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10 How are lenticels adapted for gaseous exchange? (2 marks)

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11 State the advantage of possessing blood group AB. (1 mark)

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12 (a) A student collected an organism and observed the following features: simple eyes, four pairs of legs and two body parts.

(i) State the class to which the organism belongs. (1 mark)

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(ii) Give an example of an organism in this class. (1 mark)

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(b) Name the kingdom to which plasmodium belongs. (1 mark)

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13 State **two** characteristics of living organisms that are specific to plants. (2 marks)

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14 Name the **three** end products of anaerobic respiration in plants. (3 marks)

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15 State **two** reasons why accumulation of lactic acid leads to an increase in heart beat. (2 marks)

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16 Name **three** mechanisms that ensure cross pollination takes place in flowering plants. (3 marks)

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17 Name the flower part that produces gametes. (1 mark)

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18 How is the human sperm cell structurally specialised? (2 marks)

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19 State **three** factors in seeds that cause dormancy. (3 marks)

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20 Explain the theory of evolution by natural selection. (2 marks)

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21 (a) Explain the role of continental drift in evolution. (3 marks)

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(b) What is meant by the term organic evolution? (1 mark)

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22 The diagram below illustrates a response by a certain plant.

(a) Name the type of response. (1 mark)

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(b) Explain how the response illustrated above occurs. (3 marks)

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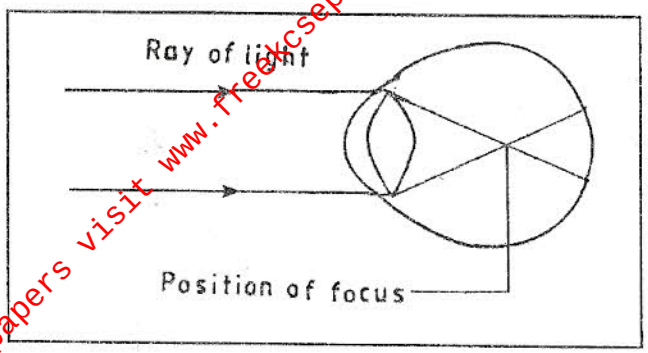
23 The diagram below illustrates a defect in the eye.



Explain how the defect illustrated above can be corrected. (2 marks)

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24 Explain **three** protective functions of mammalian blood. (3 marks)

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25 State **one** adaptation of xylem vessels to their function. (2 marks)

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26 (a) What is meant by the term sex linked genes? (1 mark)

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(b) Name **two** sex linked traits in human beings. (2 marks)

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27 (a) State **two** differences between complete and incomplete metamorphosis. (2 marks)

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(b) State the importance of moulting to an insect. (1 mark)

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28 (a) State **two** features of a ball and socket joint. (2 marks)

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(b) Name the bone that allows the head to:

(i) node; .....

(ii) turn side ways. .....

(2 marks)

29 State **two** functions of pelvic girdle in mammals. (2 marks)

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30 State **two** ways in which osmosis is significant to plants. (2 marks)

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