

Name Index No.

Candidate's signature

Date

231/1

BIOLOGY

Paper 1

(Theory)

July/August 2017

Time 2 hours

FORM FOUR END OF SECOND TERM EXAM

Kenya Certificate of Secondary Education

BIOLOGY

Paper - 231/1

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Time: 2 hours

INSTRUCTIONS TO CANDIDATES

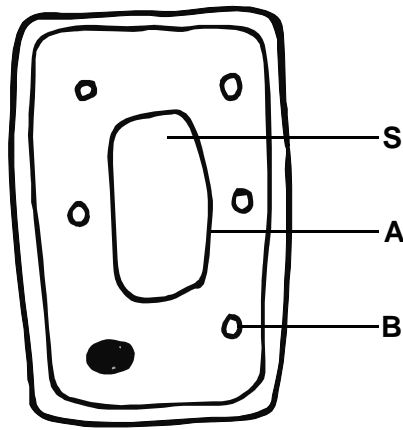
- Write your name and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- Answer ALL questions in the spaces provided.

EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1 - 25	80	

*This paper consists of 8 printed pages
Candidates should check the question paper to ensure that all the
printed pages are printed as indicated and no questions are missing.*

1. The diagram below shows a specialised plant cell.



a) Identify the cell. (1 mark)

.....

b) Name the parts labelled A and B. (2 marks)

A

B

c) State the function of the parts labelled S. (1 mark)

.....

2.a) State two differences between osmosis and active transport. (2 marks)

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.....
.....

b) State an example of active transport in
i) a plant(1 mark)

ii) Humans.....(1 mark)

3. State how the endoplasmic reticulum is adapted to its function. (2 marks)

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.....
.....

4.a) What is mastication? (1 mark)

.....

b) What is the significance of the above process? (1 mark)

.....

c) Name two enzymes present in pancreatic juice and in each case state their role in digestion.(2 marks)

.....
.....

5.a) State the disease due to deficiency of secretion of insulin in humans. (1 mark)

.....

b) Explain why insulin is not administered orally. (1 mark)

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6.a) The type of circulatory system found in the members of the class insecta is (1 mark)

.....

b) Name the blood vessels which transport blood from (3 marks)

i) small intestines to the liver

ii) liver to the venacava.....

iii) dorsal aorta to the kidneys.....

7. The figures below shows two types of animals.



a) Identify the phylum of the two organism (1 mark)

.....

b) i) Identify two distinguish characteristics which are used to put the organism into their different classes. (2 marks)

.....
.....
.....

ii) Name the classes to which the organism belong. (2 marks)

A

B

8. Give the type of variations shown by the following characteristics. (2 marks)

a) Length of internodes.

b) Blood groups.

9. Fill in the table below by stating the type of response described and stimulus (4 marks)

Description	Type of response	Stimulus
i) Pollen tube growing towards sugary substances in the style.		
ii) Folding of leaves on a hot sunny day		

10. Distinguish between convergent evolution and divergent evolution. (2 marks)

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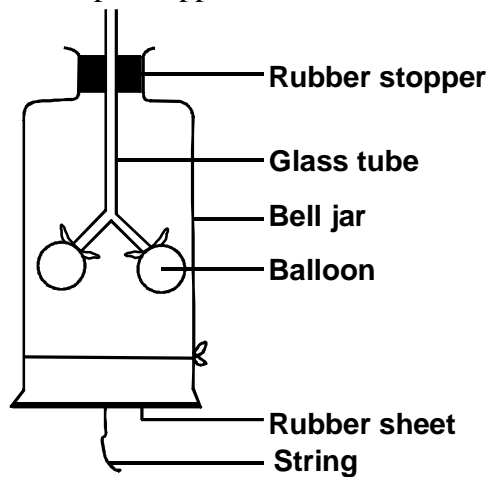
11. a) Name a hormone that has inhibitory effects in plants growth. (1 mark)

.....

b) State two characteristics of meristematic cells. (2 marks)

.....

12. Tom and two students set up the apparatus shown below to demonstrate the breathing mechanism in a mammal.



a) What structure in a mammal is represented by each of the following? (2 marks)

i) Glass tube

ii) Rubber sheet

b) Explain what will happen to the balloons if the rubber sheet is pulled downwards. (2 marks)

.....

13. Identify the only type of vertebrae that has .

a) Capitular facet (1 mark)

.....

b) Vertebrarterial (1 mark)

.....

c) Odontoid process. (1 mark)

.....

14. State the role played by the following bacteria in the nitrogen cycle.

i) Rhizobium bacteria. (1 mark)

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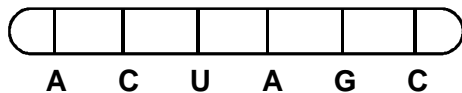
ii) Nitrosomonoas (1 mark)

.....

iii) Pseudomonas denitrificans. (1 mark)

.....

15. The figure below show a section of a nucleic acid strand.



a) Giving a reason identify the type of nucleic acid shown. (2 marks)

.....

b) Construct the complementary strand to the one in (a) above. (1 mark)

.....

16. List down three differences between endocrine and nervous system. (3 marks)

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17. a) Mutua and Mwende used a light microscope to observe guard cells in a leaf. They indicated a magnification of X450. Given that the eye piece was marked X10, work out the objective lens magnification. (2 marks)

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.....

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b) State the function of fine adjustment knob. (1 mark)

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18. Name two dental diseases. (2 marks)

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.....

19. State one use of each of the following excretory products of plants. (3 marks)

i) Papain

ii) Tannin

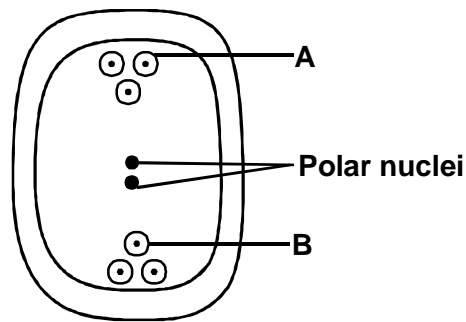
iii) Caffein

20. a) Highlight two similarities between mitosis and meiosis. (2 marks)

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b) Study the diagram below and answer the questions that follow.



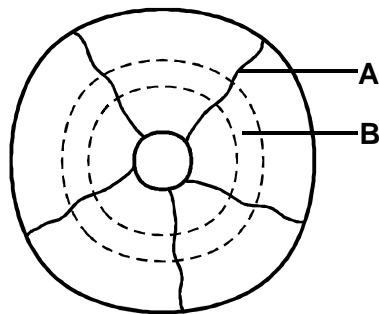
Name the parts labelled A, B and C. (3 marks)

A

B

C

21. The diagram below shows the internal arrangement of muscle fibres in the iris of the human eye.



i) Identify the muscles labelled A and B

A

B

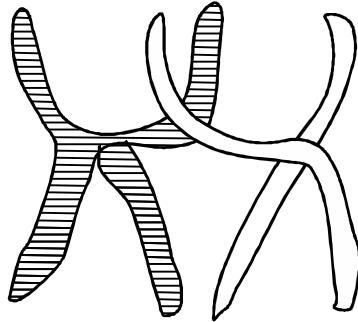
ii) State what will happen to each muscle when eye is exposed to bright light. (2 marks)

.....
.....

22. State three internal factors that causes seed dormancy. (3 marks)

.....
.....
.....

23. The diagrams below shows a pair of homologous, chromosomes. Study them and answer the questions that follow.



i) State the phenomenon shown above. (1 mark)

.....
.....

ii) What is the genetic significance of phenomenon above. (2 marks)

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.....
.....

24. Name the structure in the human body that detect.

i) External temperature changes. (1 mark)

.....

ii) Internal temperature changes. (1 mark)

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25. Describe the path taken by carbon (IV) oxide release from the tissues of an insect to the atmosphere. (3 marks)

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