

Name Index No.

231/2

Candidate's signature

BIOLOGY

Date

Paper 2

(Theory)

October/November 2016

Time 2 hours

KANDARA SUB-COUNTY FORM 3 JOINT EVALUATION

Kenya Certificate of Secondary Education

BIOLOGY

Paper - 231/2

October/November 2016

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.
- This paper consists of **TWO** sections; **A** and **B**.
- Answer all questions in section **A** in the spaces provided.
- In section **B** answer questions **6 (Compulsory)** and either question **7** or **8** in the spaces provided after question **8**.

EXAMINER'S USE ONLY

Section	Question	Maximum score	Candidate's score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
		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.*

SECTION A : (40 marks)
Answer ALL the questions in this section in the spaces provided.

1.a) i) Name the blood vessel that links arterioles and venules. (1 mark)

.....

ii) What is the main function of the vessels named in 1a(i) above. (1 mark)

.....

iii) Explain two ways in which the vessels are adapted to their function. (2 marks)

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.....

b) State two ways in which the blood composition in the pulmonary arterioles differ with that in the pulmonary venules. (2 marks)

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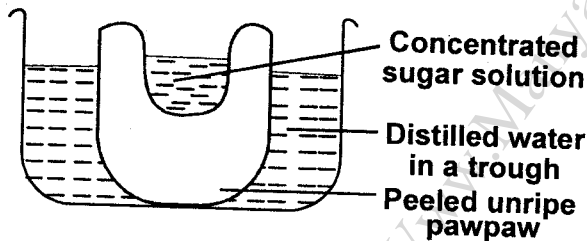
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c) Blood in the veins flows in a low pressure compared to the arteries. State two ways in which the veins are adapted to deal with the problem of low pressure of blood. (2 marks)

.....

.....

2. Some students set up the experiment below to investigate a certain physiological process.



i) Name the physiological process that the students were investigating. (1 mark)

.....

ii) Why was the pawpaw peeled. (2 marks)

.....

iii) State and explain the observation made in the above experiment after 1 hour. (3 marks)

.....

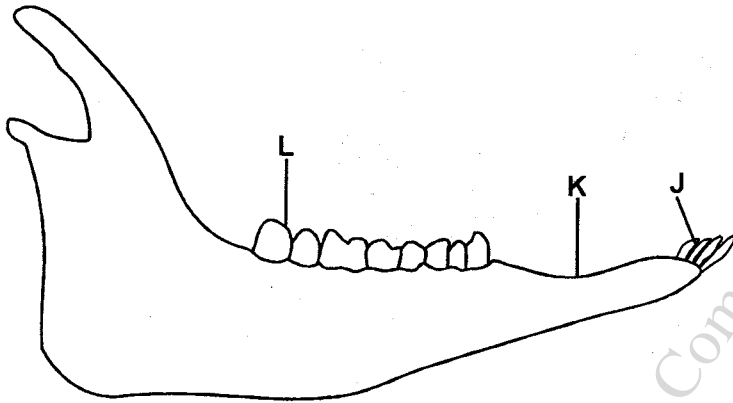
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iv) State and explain the expected results if the above experiment was repeated using a boiled unripe peeled pawpaw. (2 marks)

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

3.a) The diagram below shows a jaw of a certain animal.



i) Name the mode of nutrition of the animal whose jaw is shown. (1 mark)

.....

ii) State one structural and one functional difference between the teeth labelled J and L. (2 marks)

Structural.....

Functional.....

iii) Name the toothless gap labelled K. (1 mark)

.....

b) Explain 4 ways in which a leaf is adapted to its photosynthesis function. (4 marks)

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

4.a) Describe 2 adaptations of gaseous exchange surface (2 marks)

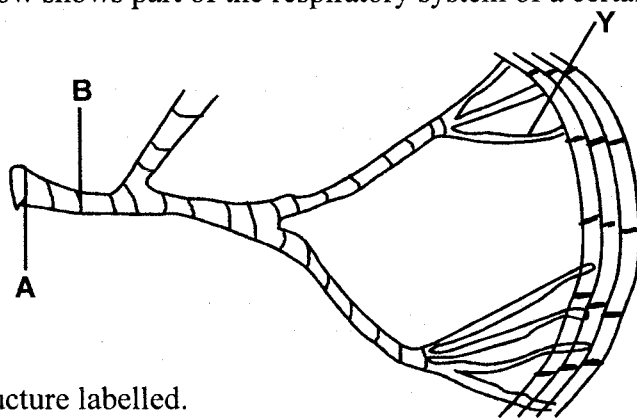
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b) Name the gaseous exchange structures of (2 marks)

i) Adult frog

ii) Whale

c) The diagram below shows part of the respiratory system of a certain animal.



i) Name the structure labelled. (2 marks)

A

Y

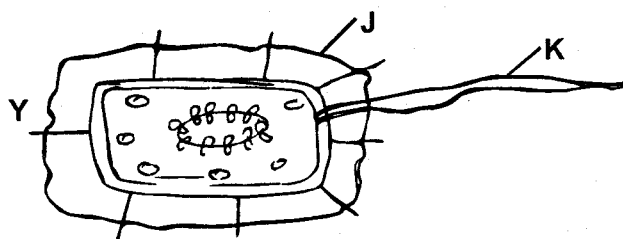
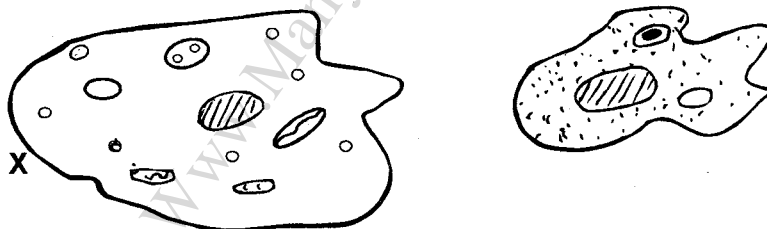
ii) State the function of the part labelled A (1 mark)

.....

iii) What is the importance of the ringed structure labelled B. (1 mark)

.....

5. Study the two organisms drawn below.



a) To which kingdoms do the organisms drawn above belong? Give a reason for your answer (4 marks)

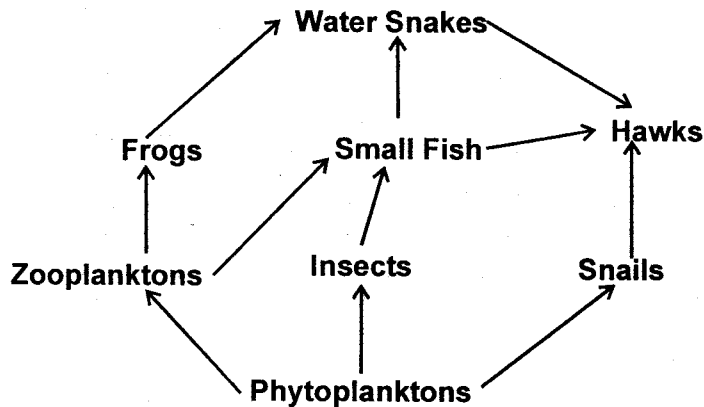
	Kingdom	Reason
X		
Y		

b) Name the structures J and K and state their functions.

(4 marks)

Kingdom	Structure	Function
J		
K		

6.a) The diagram below represents a feeding relationship in an aquatic ecosystem.



a) Name the producers in this ecosystem.

(1 mark)

.....

b) Name the organism that occupies the highest trophic level.

(1 mark)

.....

c) Isolate and write down the following food chains:

i) Hawk as a secondary consumer.

(1 mark)

.....

.....

ii) Hawk as a quaternary consumer.

(1 mark)

.....

.....

d) List two short term effect in this ecosystem if all frogs died due to a disease outbreak.

(2 marks)

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e) Explain why primary productivity in an aquatic ecosystem decreases with depth.

(2 marks)

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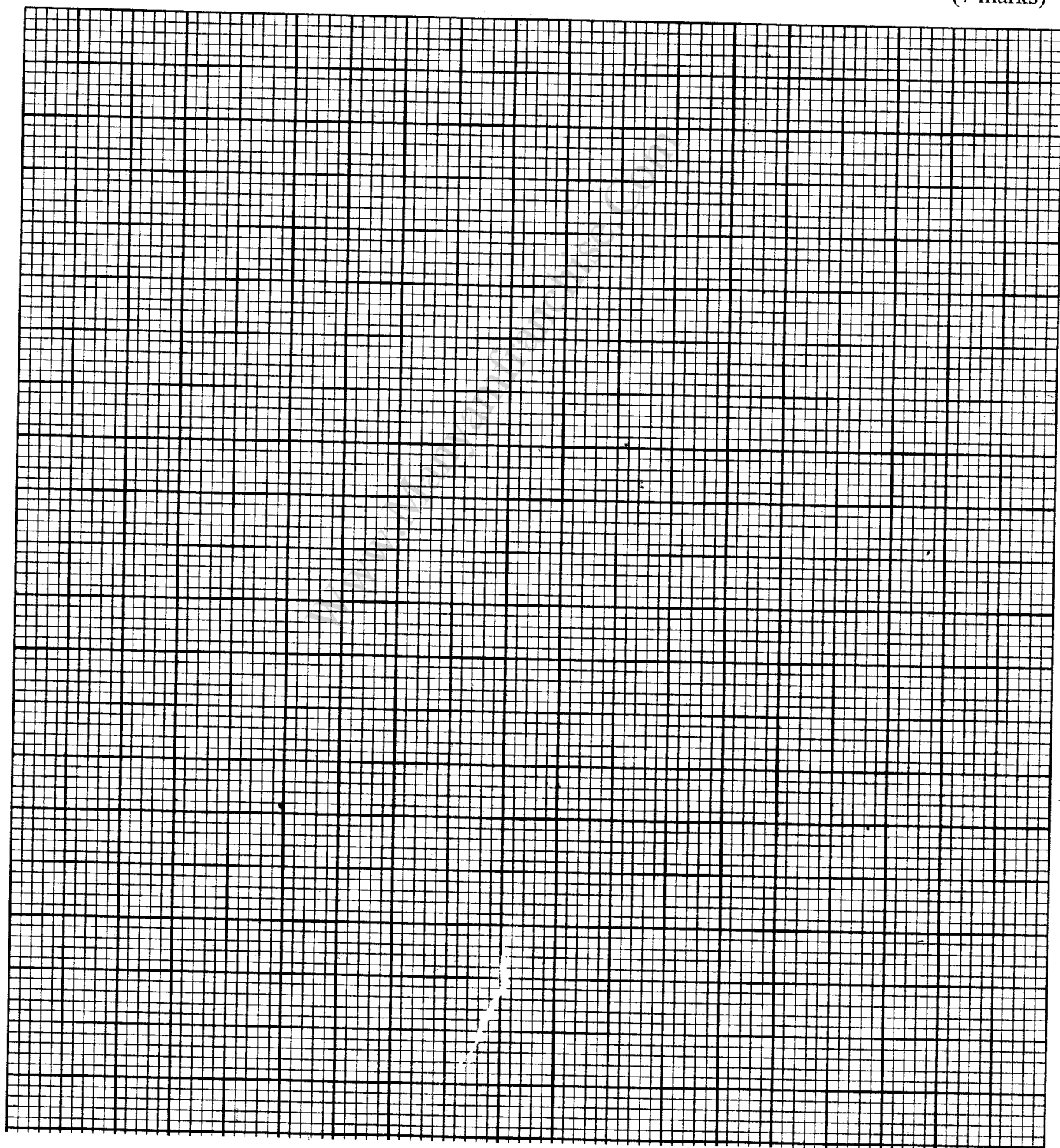
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6. During germination and growth of cereal, the dry weight of endosperm, embryo and total dry weight were determined at two-day intervals. The results are shown in the table below.

Time after planting (days)	Dry weight of endosperm (mg)	Dry weight of embryo (mg)	Total dry weight (mg)
0	43	2	45
2	40	2	42
4	33	7	40
6	20	17	37
8	10	25	35
10	6	33	39

a) Using the same axes, draw graphs of dry weight of endosperm, embryo and the total dry weight against time (7 marks)



b) What was the total dry weight on day 5? (1 mark)

.....

c) Account for
i) decrease in dry weight of endosperm from day 0 to day 10. (2 marks)

.....

.....

ii) increase in dry weight of embryo from day 0 to day 10. (2 marks)

.....

.....

iii) decrease in total dry weight from day 0 to day 8 (1 mark)

.....

iv) increase in total dry weight after day 8 (1 mark)

.....

d) State two factors within the seed and two outside the seed that cause dormancy. (2 marks)
i) Within the seed

.....

.....

ii) Outside the seed (2 marks)

.....

.....

e) Give two characteristics of meristematic cells. (2 marks)

.....

.....

7. a) Describe how structural factors decrease the rate of transpiration in terrestrial plants. (10 marks)

b) Explain how the various parts of female reproductive organ are adapted to their functions. (10 marks)

8. a) Describe how excretion takes place in mammalian kidneys. (8 marks)

b) Explain how abiotic factors affect living organisms. (12 marks)

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