

NAME..... ADM NO.....
SCHOOL..... CANDIDATES SIGN.....
DATE

231
BIOLOGY
FORM 2
END OF TERM THREE
TIME: 2 HOURS

END OF TERM (III) EXAMINATION -2019
Kenya Certificate of Secondary Education (K.C.S.E)

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BIOLOGY
FORM 2
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INSTRUCTIOS TO CANDIDATES

- ❖ Answer all the questions in the spaces provided.

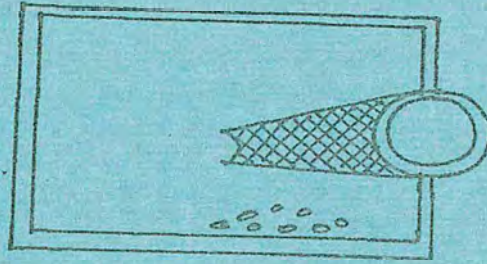
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SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE SCORE
A	1-6	20	
B	7-11	40	
C	12 AND 13	40	
	TOTAL	100	

1. Identify the following apparatus and state their uses

(4mks)

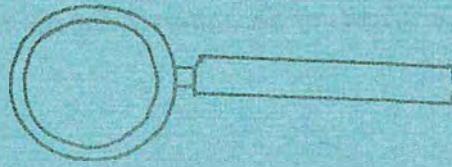
(i)



Name

Function

(ii)



Name

Function

2. (a) Why would carboxyhaemoglobin lead to death

(2mks)

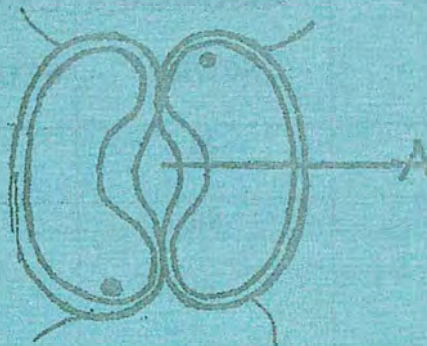
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.....

(b) State the role of companion cells in the phloem tissue

(1mk)

.....

3. The diagram below shows plant cells



(a) Identify the cells shown above

(1mk)

.....
.....

(b) Explain how the cells are adapted to their function (1mk)

.....
.....
For each of the following examples state the main characteristics of life that they demonstrate

(a) A football fan watching a soccer match on television and cheering (1mk)

.....
.....
(b) A tree bearing fruits (1mk)

.....
.....
(c) A lion chasing a gazelle (1mk)

.....
.....
A group of Form 2 students placed a fresh leaf in warm water. They observed bubbles formed on the surface of the leaf:

(a) What biological process were they investigating? (1mk)

.....
.....
(b) Name the structures from which the air bubbles were coming from (1mk)

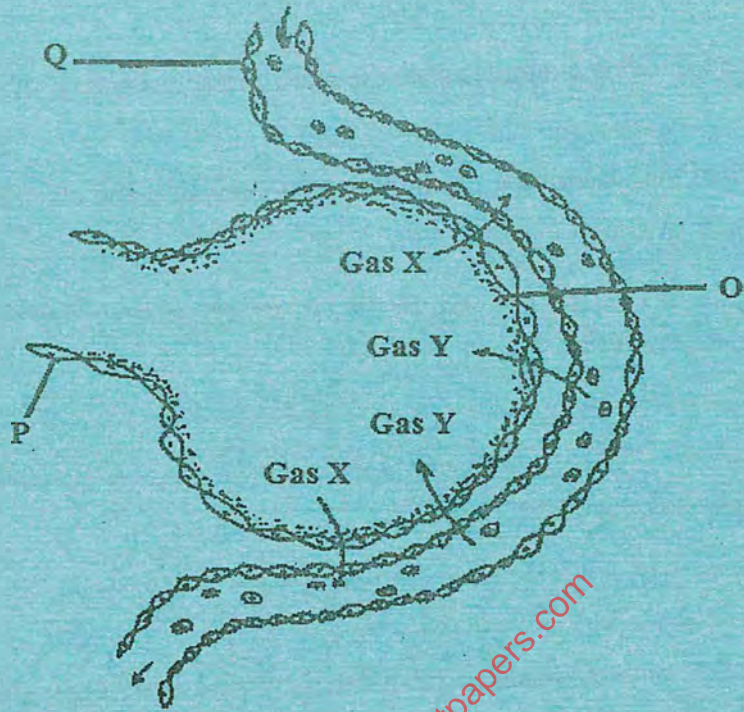
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.....
(c) How are the structures named in (b) above distributed on the leaf surface of a plant found on land (1mk)

.....
.....
(a) Name the organelle found in abundance in the white blood cells (1mk)

.....
.....
(b) Give a reason for your answer in (a) above. (1mk)

SECTION B (40MARKS)

7. The diagram below represents the alveolus



(a) Identify O, P and Q.

(3)

O -

P -

Q -

(b) Identify gas Y.

(1)

(c) State one adaptation of the alveolus to its function

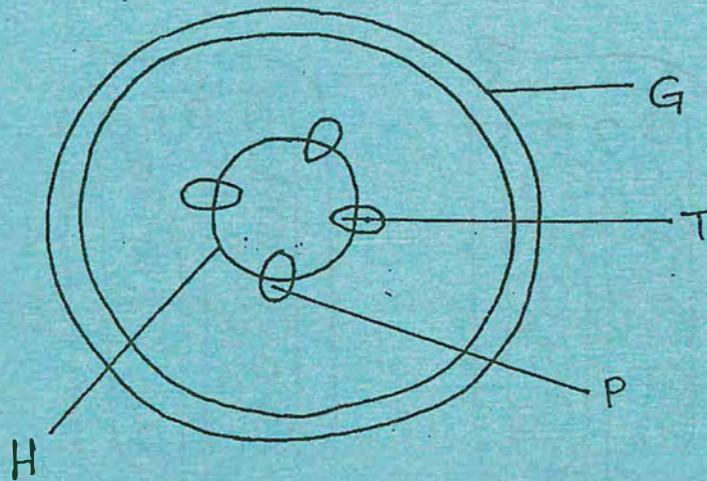
(1)

(d) Explain how gas X moves into the blood capillarity

(3)

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

8. The diagram below represents a cross-section through a plant organ



(a) Giving a reason, identify organ shown above (2mks)

Identify

Reason:

(b) (i) Name the tissue labeled T. (1mk)

.....

(b) State **two** adaptations of the tissue labelled T (2mks)

.....

.....

(c) Name **one** substance transported by the part labelled P (1mk)

.....

.....

(d) State the function of part G. (1mk)

.....

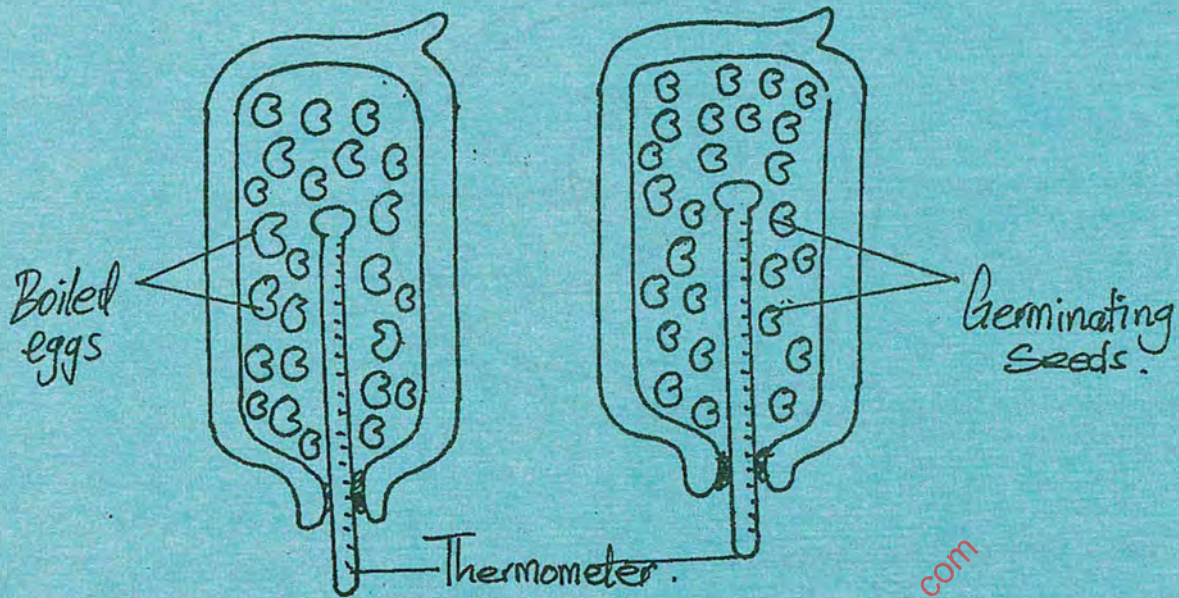
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(e) Name the tissue labelled H. (1mk)

.....

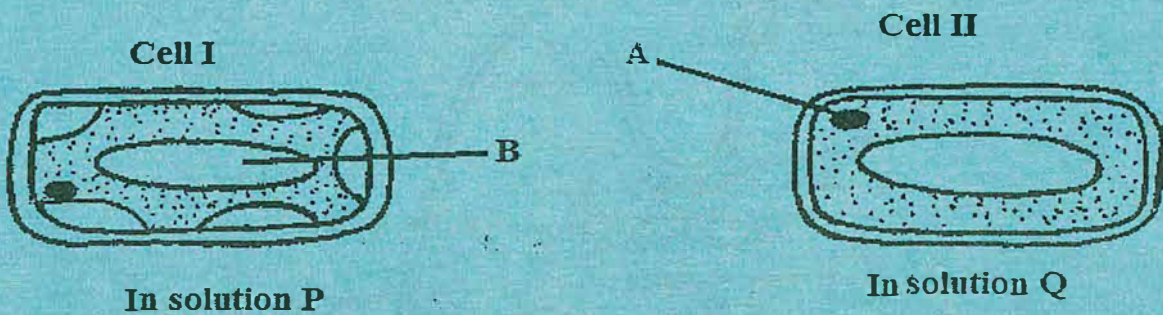
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9. A group of students set up an experiment using soaked germinated seeds and boiled seeds as shown below.



- (a) What was the aim of the experiment? (1mk)
-
-
- (b) What observations were made after 24 hours in flask A and B? (2mks)
- A -
- B -
- (c) Explain the observations made in flask B above. (2mks)
-
-
-
- (d) What was the role of flask A? (1mk)
-
-
- (e) What changes would you expect in the composition of gases in flask B after 24 hours? (2mks)
-
-
-

10. The cells shown below are obtained from two different cylinders which were immersed in two different solutions P and Q.



- (a) (i) Name the structure labelled A. (1mk)

.....

.....

- (ii) State the function of structure labelled B (1mk)

.....

.....

- (b) If eight of cell I were observed across the diameter of the field of view of 0.5mm. Work out the actual diameters of each cell in micrometers. (2mks)

.....

.....

.....

.....

.....

.....

- (c) Suggest the identity of the solution Q (1mk)

.....

.....

- (d) Account for the change in cell I above (2mks)

.....

.....

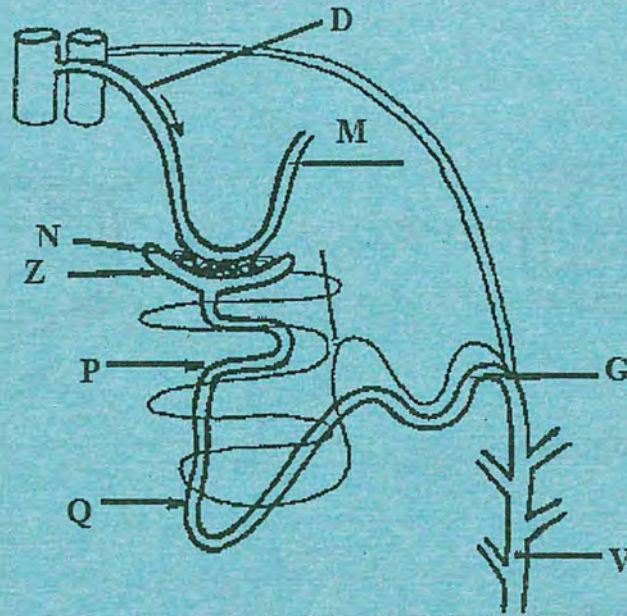
- (e) State **one** importance of the physiological process being demonstrated above in animals. (1mk)

.....

.....

11.

Study the diagram below and answer the questions that follow



(a) Name the structure represented by the diagram (1mk)

.....
.....

(b) (i) Name the parts labelled D and M. (2mks)

D -

M -

(ii) Name the hormones whose sites of action are Q and G (2mks)

Q -

G -

(c) Name **one** substance that is present in part N but absent in part Z (1mk)

.....
.....

(d) Reducing sugars/glucose was present in urine, the person is likely to be suffering from diabetes mellitus, (2mks)

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SECTION C (40MKS)

12. 1cm^3 of catalase solution was added to equal volumes of hydrogen peroxide solution at different pH values. The time taken to collect 10cm^3 of oxygen was measured. The results were as follows:

pH of solution	Time taken to collect gas (cm^3)
5.5	30
6.0	20
6.5	12
7.0	8
7.5	5
8.0	9
8.5	15
9.0	25

- (a) Plot a line graph of time against pH of solution

(6mk)

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(b) Account for the rate of reaction at:

(i) pH 7.5.

(2mks)

.....
.....

(ii) pH 5.5.

(2mks)

(iii) pH 9.0

(2mks)

(c) Write a word equation for the reaction above

(1mk)

(d) What is the importance of the reaction you have given in (c) above

(2mks)

(e) Name an organ in the body where the above reaction takes place

(1mk)

(f) Other than the factor being investigated above, name four other factors that affect the rate of enzyme controlled reactions

(4mks)

13. Explain the adaptations of the mammalian blood to its functions

(20mks)

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