

NAME: .....INDEX NO:.....

SCHOOL: .....SIGN:.....

DATE: .....

231/2

BIOLOGY

PAPER 2

JUNE- 2016

TIME: 2HOURS.

## CENTRAL YEARLY MEETING OF FRIENDS (CYMF) -2016

Kenya Certificate of Secondary Examination (KCSE)

231/2

BIOLOGY

PAPER 2

### INSTRUCTIONS TO CANDIDATES

- Write your **Name, School** and **Index** number in the spaces provided.
- Answer **all** questions in section **A** in the spaces provided. In Section **B**, answer question **6** (compulsory) and either **7** or **8** in the spaces provided after question **8**.
- Candidates should answer all the questions in **English**.

### FOR EXAMINERS USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
SECTION A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
SECTION B	6	20	
	7	20	
	8	20	
TOTAL SCORE		<b>100</b>	

*This paper consists of 8 printed pages Check the Question paper to ensure that all pages are printed as indicated and no question are missing.*

**SECTION A**

**(Answer ALL questions in this section)**

1. (a) The table below shows the concentration of sodium and iodine ions in pond water and in the cells sap of water lettuce plant

	Sodium ion concentration	Iodine concentration
Ponch water	180	0.4
Cell sap	90	500

(a) Giving reasons name the process through which each of the ions is taken up by the plant

(i)Sodium ion (2mks)

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(ii)Iodine ion (2mks)

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(b) The lettuce plant was then treated with a chemical substance that inhibit the syntheisis of ATP

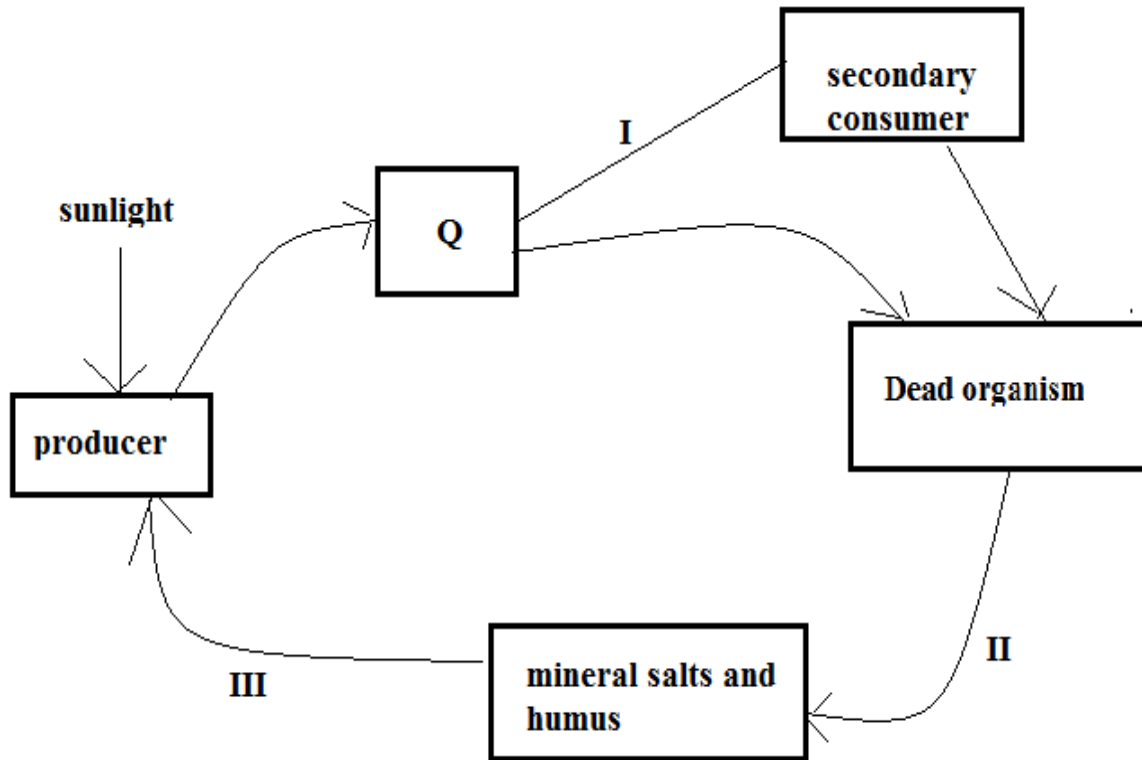
Giving a reason ,state which ion was affected by the treatment (2mks)

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(c) Explain why fresh water fish cannot survive in marine habitat . (2mks)

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2. The diagram below represents recycling of nutrients in a certain ecosystem



(a) Name the trophic level represented by Q. (1mk)

.....

(b) Name the process represented by; (3mks)

I.....

II.....

III.....

(c) Name the organism involved in process II. (1mk)

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.....

(d) What would happen within the ecosystem if all the secondary consumers were eliminated? (3mks)

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3. In a garden of plants of the same species 705 plants have red flowers which 224 had white flowers.

(a) Work out the ratio of the red to white flowers (show your working). (2mks)

(b)(i) Using letter R to represent the dominant gene, work out a cross between F1 offspring and a white flowered plant (4mks)

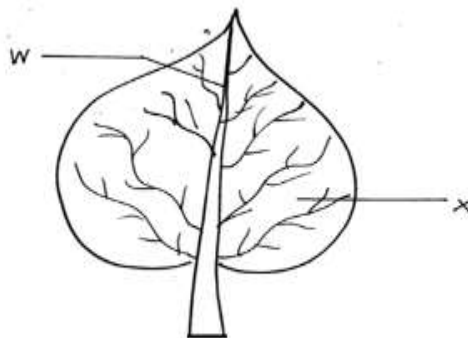
(ii) What is the genotypic ratio from the cross in (i) above? (1mk)

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(c) What is meant by the term allele? (1mk)

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4. The diagram below shows a leaf of a certain plant



(i) Name the parts labeled W and X (2mks)

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.....  
.....

(ii) State how the parts labeled W and X are adapted to their functions (2mks)

W.....

.....

X.....

.....

(B) (I) Using observable features only, state the class to which the plant from which the leaf above was obtained belongs (1mk)

.....  
.....

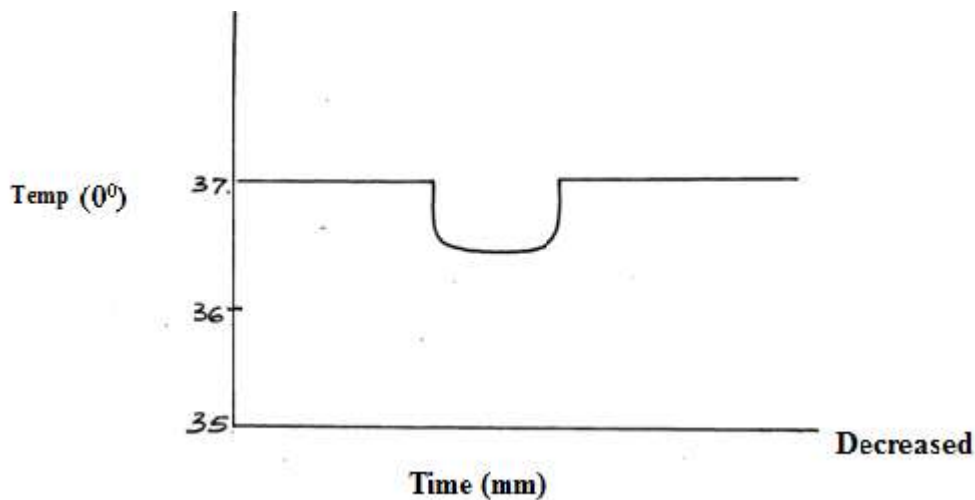
(ii) Give two reasons for your answer in (i) above (2mks)

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(iii) Give one climatic condition that favors the growth of the plant from which the leaf was obtained (1mk)

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5. The temperature of a person was taken before, during and after a cold bath. The results are shown in the graph below.



(a) Explain why the temperature decreased during bath. (3mks)

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(b) What changes occurred in the skin that enabled the body to return to normal. (4mks)

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(c) Name the specific part that controls body temperature in humans. (1mk)

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.....

**SECTION B (40MARKS)**

*Answer question 6 (compulsory) and either question 7 and 8 in the spaces provided after question 8.*

6. In an experiment 900 viable seeds of a certain plant species were divided into groups of 100 seeds each. Each group of seeds was placed at different temperatures but same conditions of air and moisture. The percentage of germination was determined after 10 days. The table below shows percentage germination at normal temperatures.

Temp (0c	0	5	10	15	20	25	30	35	40
Percentage germination	0	0	2	5	16	50	84	30	2

(a) Using a suitable scale, draw a graph of percentage germination against temperature ( $^{\circ}\text{C}$ ). (6mks)

(b) Account for percentage germination at

(i)  $5^{\circ}\text{C}$  (3mks)

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(ii)  $30^{\circ}\text{C}$  (3mks)

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(iii)  $40^{\circ}\text{C}$  (3mks)

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(c) Explain the role played by each of the following factors in germination of seeds.

i) Water (3mks)

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ii) Oxygen (2mks)

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7. Describe the various ways in which seeds and fruits are adapted for dispersal. (20mks)

8. (a) What is natural selection? (2mks)

(b) Discuss three examples of natural selection in action. (18mks)

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