

NAME:.....INDEXDATE.....
SCHOOL:.....SIGNATURE.....

231/2
BIOLOGY
PAPER 2
JULY / AUGUST 2010
2 HOURS

**BELGUT / AINAMOI JOINT EVALUATION
EXAMINATION
Kenya Certificate of Secondary Education 2010**

231/2
BIOLOGY
PAPER 2
JULY / AUGUST 2010

INSTRUCTIONS TO CANDIDATES:

- ❖ Write your name, index numbers and the name of your school in the spaces provided above.
- ❖ This paper consists of two parts A and B.
- ❖ Answer all the questions in section A in the spaces provided.
- ❖ In section B, answer 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

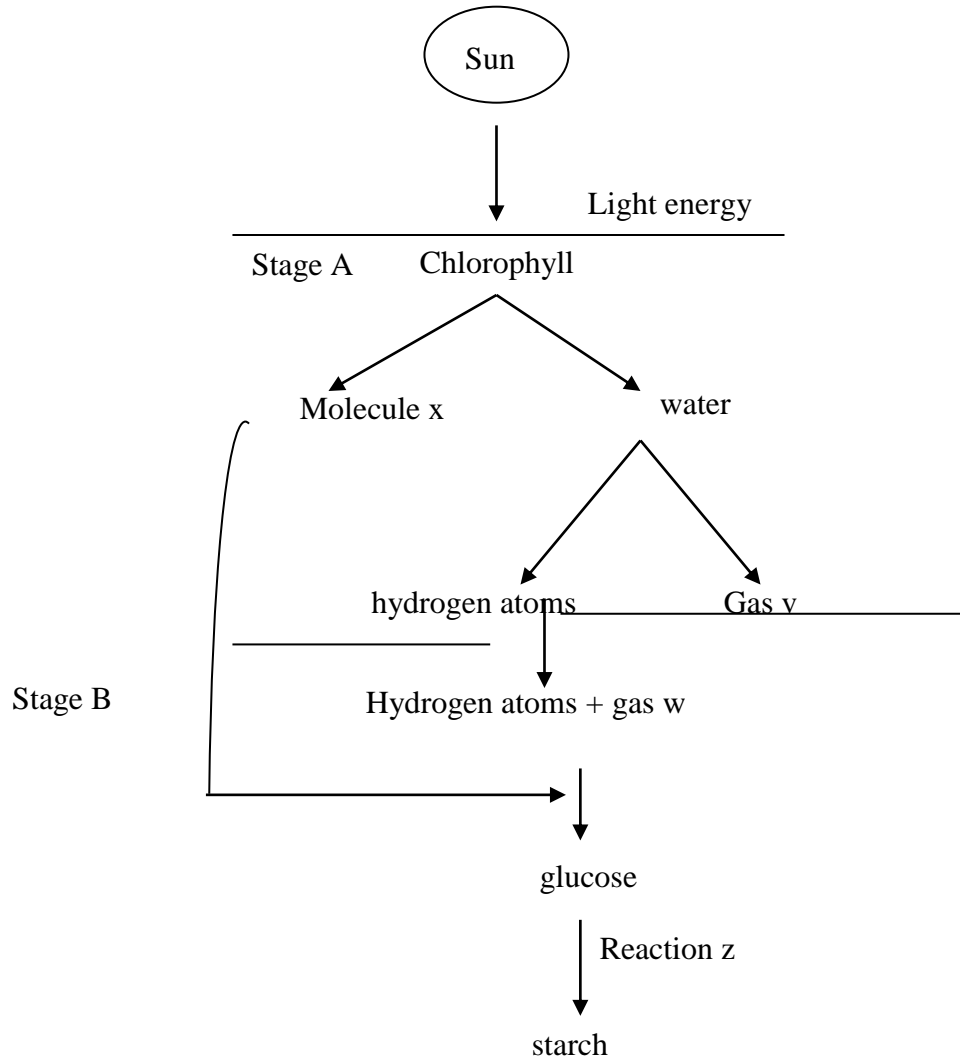
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Section	Question	Maximum score	Candidate's score
A	1	9	
	2	7	
	3	7	
	4	10	
	5	7	
B	6	20	
	7	20	
	8	20	
	SCORE	80	

SECTION A (40marks)

Answer all the question in this section in the spaces provided.

1. Below is a diagrammatic summary of the main biochemical events in photosynthesis. Study it carefully.



- a) Suggest the identity of molecule X (1 mk)

- b) Name the gases represented by the letters (2 mks)
 V.....
 W.....
- c) Identify reaction Z. (1 mk)

- d) Name the specific site for the reactions in stage B. (1 mk)

- e) Apart from starch, which other compounds are formed from glucose? (2 mks)

f) State two observable features of a leaf which adapt it to the biochemical reactions shown above. (2 mks)

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2. When offspring of purple and white flower pea plants were crossed, they produced purple and white flowered plants in the ratio of 3:1.

Using letter H to represent purple colour,

a) State the genotype of:

(i) Parents (2mks)

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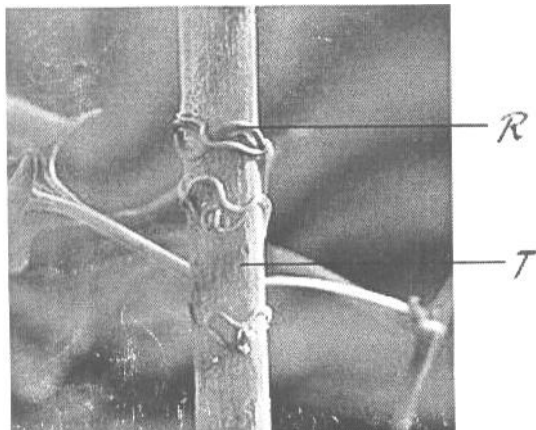
(ii) F1 generation (1mk)

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b) Work out the cross between plants in the F1 generation. (4mks)

c) Account for the colour of the flowers in plants of the F1 generation. (1mk)

3.



a) Name the structure labeled R (1mk)

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b) (i) What response is exhibited by the structure labeled R? (1mk)

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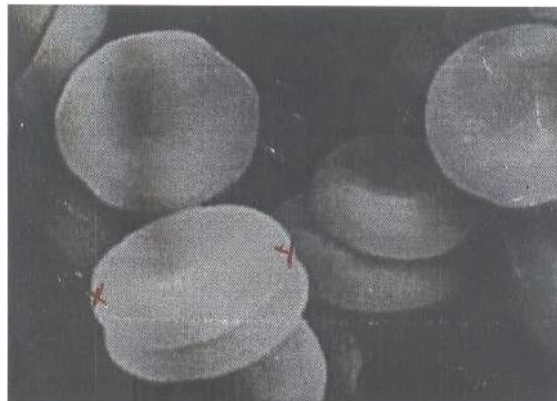
(ii) State two importance of the response named in (b)(i) above to the survival of the plant. (2mks)

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c) Explain how structure R intertwines round structure T. (3mks)

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4. Study carefully the picture shown below.



a) (i) Identify the cells above. (1mk)

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(ii) State two functions of the cells shown above. (2mks)

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b) Explain how the above cells are adapted to their function. (2mks)

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c) Name a parasite that may invade and destroy the cells above. (1mk)

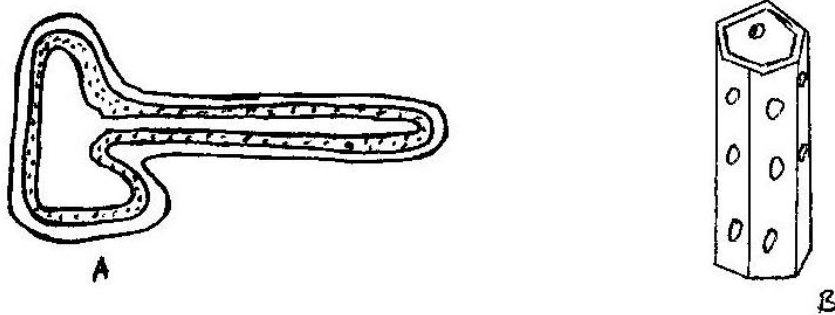
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d) Suggest two bones in an adult man which produce the cells shown above. (2mks)

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- e) The picture shown above was observed using an electron microscope with total magnification of X 1000
- (i) Measure the length of the cell on the electromicrograph in millimeters between X and Y (1mk)
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- (ii) Calculate the actual size of the cell and give your answer in micrometer (2mks)
- (show your working)*

5. The figure below shows two types of cells, not drawn to scale.



- a) What is the name of cell A? (1mk)
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- b) (i) B is a xylem vessels state two functions in plants. (2mks)
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- (ii) The cells forming the xylem vessel have no chloroplasts or vacuoles. In what other way is this type of cell different from a typical plant cell. (2mks)
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- (iii) Explain how this difference helps this type of cell to perform its function. (2mks)
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SECTION B (40marks)

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

6. In an experiment three healthy rabbits were fed on equal amount of carbohydrates. After one hour the glucose concentration in mg per ml of blood was measured at 30 minutes interval for three hours. The results are as shown in the table below.

Rabbit	Initial	30mins	60mins	90mins	120mins	150mins	180mins
P	1.60	1.55	1.43	1.36	1.30	1.19	1.11
Q	1.49	1.39	1.39	1.32	1.27	1.20	1.09
R	1.57	1.39	1.33	1.27	1.18	1.10	0.99
Mean	1.55	1.44		1.32	1.25	1.16	

- a) (i) Calculate the mean concentration of glucose in mg per ml of blood at 60 and 180 minutes. Record your answer in the table. (2mks)
- (ii) On the graph paper, plot graphs of the mean glucose concentration against time. (6mks)

Grid

(iii) What is the mean glucose concentration in the blood after 75 minutes? (1mk)

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(iv) Why is it necessary to use three rabbits in the experiment? (1mk)

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b) Suggest three reasons why the initial concentration of glucose in the three rabbits was not the same. (3mks)

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c) Explain the general trend of the glucose concentration during this period. (5mks)

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d) Name two end products of digestion other than those of carbohydrates. (2mks)

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7. Describe the structure and functions of the mammalian ear for hearing. (20mks)

8. (a) Name three parameters that can be used to measuring growth. (3mks)

(b) State the limitation in the use of the above parameters in the measurement of growth in organisms. (6mks)

(c) Describe the structural adaptations of the insect's tracheal system to its functions. (14mks)

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