NYAMBARIA HIGH SCHOOL

END OF YEAR EXAMS

Paving Way For Kenya Certificate of Secondary Education Success

Name …….. Admission no…….
Candidate's Signature…… Date…….

FORM 3
BIOLOGY
PAPER 3
TIME: 2Hours

INSTRUCTIONS TO CANDIDATES

1. **Answer all the questions.**
2. **Spend the first 15 minutes of the 2 hours allowed for this paper reading the whole paper carefully before commencing your work.**
3. **Answers MUST be written in the spaces provided in the QUESTION PAPER ONLY.**

FOR EXAMINERS USE ONLY

QUESTION	Max Score	Candidate Score
1	11	
2	17	
3	12	
TOTAL SCORE	40	

1. You are provided with olive oil, liquids labeled L_1 and L_2, and an Irish potato. Label test tubesA and B. Place $2cm^3$ of water into each test tube. Add 8 drops of olive oil into each test tube. To test tube A, add 8 drops of liquid L_1. Shake both test tubes. Allow to stand for 2 minutes.

(a) (i) Record your observations ***(2 marks)***

Test Tube A

……

……

……

Test Tube B

……

……

……

(ii) Name the process that has taken place in test tube A ***(1 mark)***

……

……

(iii) State the significance of the process named in (a) above ***(1 mark)***

……

……

(iv) Name the digestive juice in humans that has the same effect on oil as liquid L_1 ***(1 mark)***

……

……

(v) Name the region of the alimentary canal into which the juice is secreted ***(1 mark)***

……

……

(b)

(i) Place 2cm^3 of liquid L_2 into a test tube. Add a drop of iodine solution . Record your observation. ***(1 mark)***

……

(ii) Suggest the identity of L_2 ***(1 mark)***

……

(c) Cut two equal cubes of whose sides are about 1cm from irish potato. Place one of the cubes into a boiling tube labelled **C.** Crush the other cube using pestle and mortar. Place the crushed material in another boiling tube labelled **D**.

To each boiling tube add 4ml of hydrogen peroxide.

(i) Record your observation. **(1mk)**

……

……

(ii) Account for the result in (c) (i) above. **(1mk)**

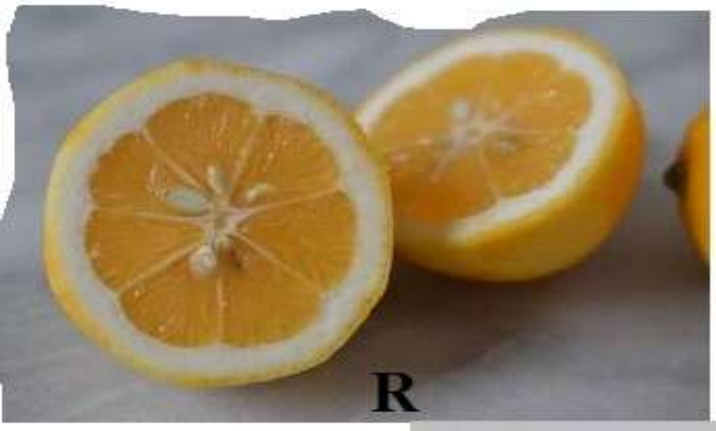
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(iii) Write an equation for the breakdown of hydrogen peroxide. **(1mk)**

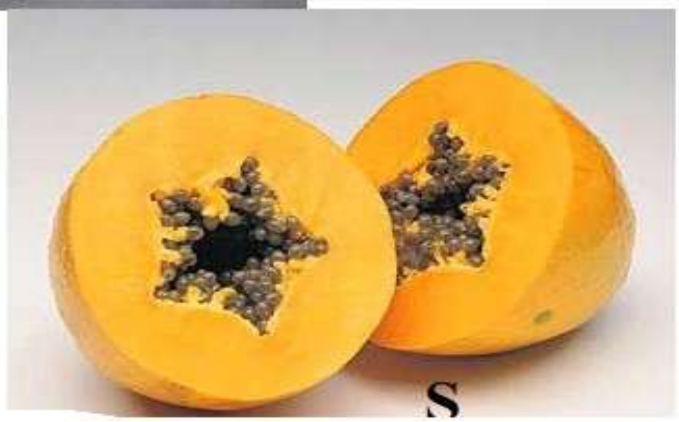
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2. The photographs labelled **R, Q** and **S** are sections of some plant parts.





Q



(a)(i) Name the type of placentation in the specimens shown in photographs **R, Q** and **S** **(3 marks)**

R…….

Q…….

S…….

(ii) Giving a reason in each case, name the mode of dispersal of the specimen in photograph **Q** and **S** **(4marks)**

Q

Mode……..……..

Reason

……

……

S

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www.kenyaeducators.co.ke

Mode……..……

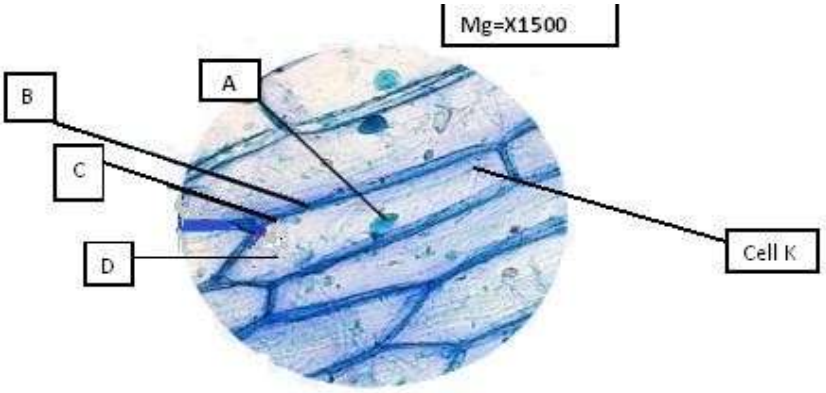
Reason

……

……

(iii) Label any one part on photograph R **(1mk)**

(b) You are provided with the photomicrograph of an onion outer epidermis as seen underlight microscope



(i) On the photograph, name parts labelled A, C and D. **(3marks)**

A ……

C …….

D …….

(ii)Explain how the part **labelled B** is adapted to its function. **(1mark)**

…….

…….

(iii) Calculate the actual size of the cell **marked K**, give your answer in micrometres. **(2mks)**

(iv) The differences between the cells in the photograph and those obtained from an animal epithelial cell. **(2marks)**

Onion epidermal cells	Animal epithelial cells

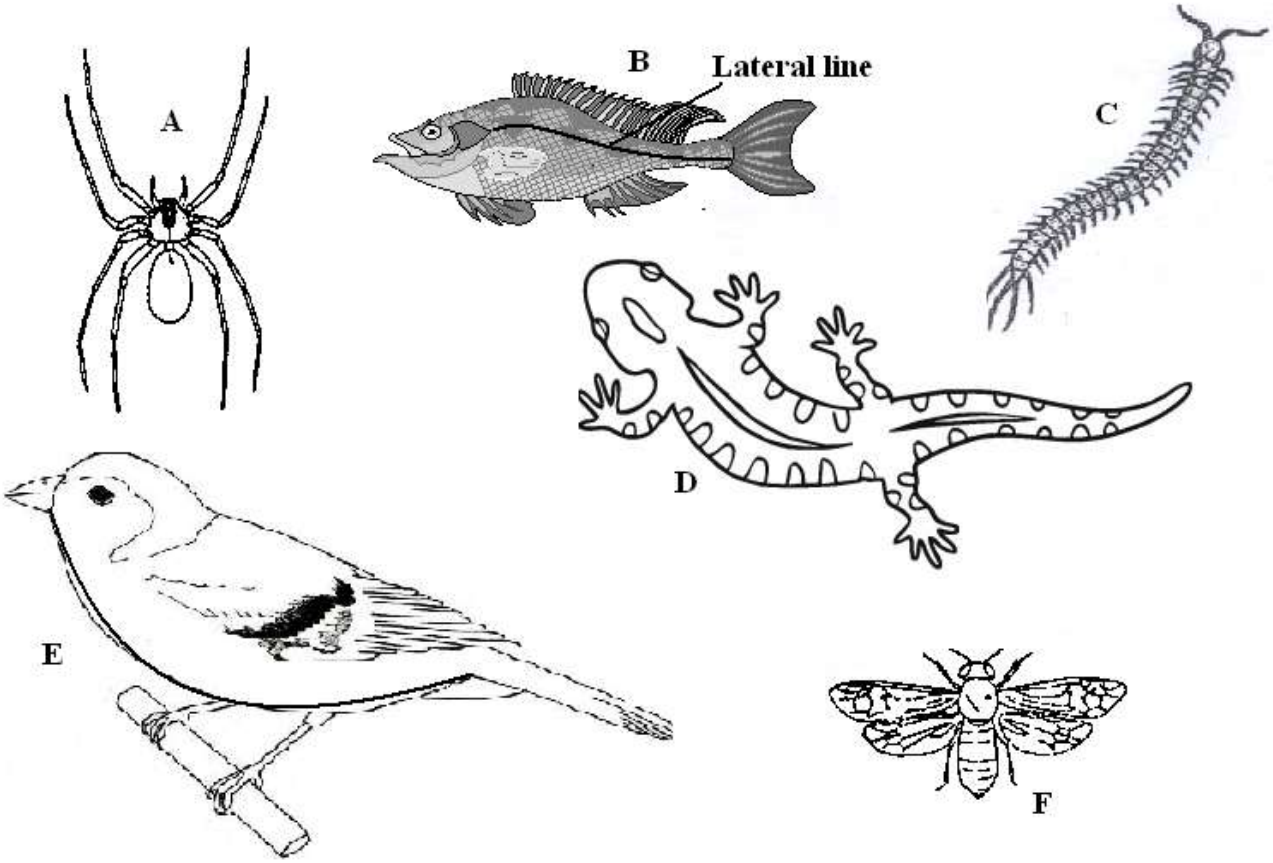
(v) State the process that make the structures in the cell above appear more distinct. **(1mk)**

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(vi) In microscopic procedure in 2(b)(v) above, name what was used to achieve the process. **(1mk)**

……

3. Study the organisms drawn below and answer the questions that follow.



(a) Using the organisms provided above, complete the construction of the dichotomous key by filling the blank space. (3 **mks**)

1. (a) Phylum Chordata …… go to 2
   (b) Phylum Arthropoda …… go to 3
2. (a) Has scales on the body …… go to 4
   (b) _____ ……..…….. Mammalia
3. (a) Has cephalothorax ……..……. Arachnida
   (b) Has no cephalothorax ……. go to 5
4. (a) Has fins …… _____
   (b) Has no fins ……... go to 7
5. (a) Has three pairs of legs ……. Insecta
   (b) Has more than three pairs of legs …… go to 6
6. (a) Two pairs of legs per segment …… Diplopoda
   (b) _____..... Chilopoda
7. (a) Has feathers …….Aves
   (b) Has no feathers …… go to 8
8. (a) Has a tail …….. Reptilia
   (b) Has no tail …….. Amphibia

(b)Use the completed dichotomous key above to identify the class the organisms belong to. (6mks)

Specimen	Step followed	Identity
A		
B		
C		
D		
E		
F		

(c) Name the **site** for gaseous exchange in organisms B, E and F. **(3mks)**

B…….

E…….

F……