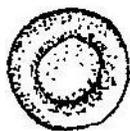


# KCSE 2008 BIOLOGY PAPER 1

## QUESTIONS

1. Name the tissues in plants responsible for:
- (a) Transport of water and mineral salts
  - (b) Transport of carbohydrates
  - (c) Primary growth ( 3 mks)
2. State the importance of the following processes that take place in the nephrons of a human kidney
- (a) Ultra filtration ( 1 mk)
  - (b) Selective reabsorption ( 1 mk)
3. (a) Name a disease of the liver whose symptom is jaundice ( 1 mk)
- (b) State the causative agent of:
- (i) Cholera ( 1 mk)
  - (ii) Candidiasis ( 1 mk)

4. The diagrams below show a red blood cell that was subjected to a certain Treatment



At start



At the end of experiment

- (a) Account for shape of the cell at the end of the experiment ( 2 mks)
- (b) Draw a diagram to illustrate how a plant cell would appear if subjected to the same treatment ( 1 mk)

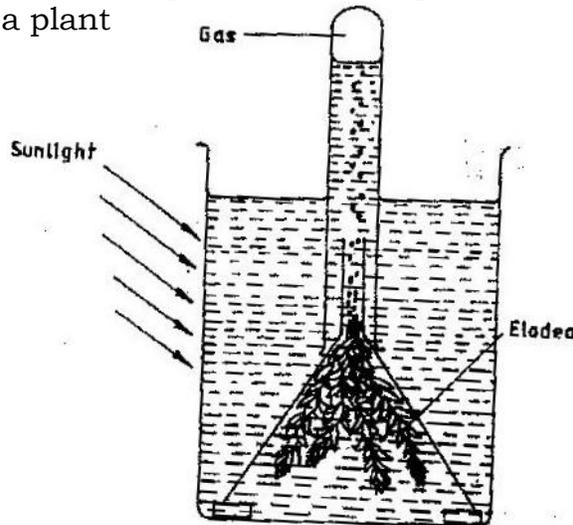
5. (a) State two factors that affect enzymatic activities ( 2 mks)
- (b) Explain how one of the factors stated in (a) above affects enzymatic Activities ( 1 mk)
6. (a) What is meant by non- disjunction? ( 1 mk)
- (b) Give two examples of continuous variation in humans ( 2 mks)
7. (a) what is fossil ( 1 mk)
- (b) How does convergent evolution occur ( 3 mks)

8. The diagram below shows a stage in mitosis in a plant cell



- (a) Name the stage of mitosis ( 1mk)
- (b) Give two reasons for your answer in (a) above ( 2 mks)
- (c) Name the part of the plant from which the cell used in preparation was Obtained ( 1 mk)
9. Give three factors that determine the amount of energy a human being require in a day ( 3 mks)
10. (a) Name the antigens that determine human blood groups ( 2 mks)

- (b) State the adaptation that enables the red blood cells to move in blood Capillaries ( 1 mk)
11. (a) What is homeostasis? ( 1 mk)  
 (b) Name three processes in the human body in which homeostasis is Involved ( 3 mks)
12. State two functions of the endoplasmic reticulum ( 2 mks)
13. (a) Name the part of retina where image is formed ( 1mk)  
 (b) State two characteristics of the image formed on the retina ( 2 mks)
14. Describe the three characteristics of a population ( 3 mks)
15. Explain what happens when there is oxygen debt in human muscles( 2 mk)
16. The diagram below represents a set up that was used to investigate certain process in a plant



- (a) State the process that was being investigated ( 1 mk)  
 (b) State a factor that would affect the process ( 1 mk)
17. Account for the following phases of a sigmoid curve of a growth of an organism  
 (a) Lag phase ( 1 mk)  
 (b) Plateau phase ( 1 mk)
18. How is the epidermis of a leaf of a green plant adapted to its function ( 2 mks)
19. The diagram below represents a tissue obtained from an animal

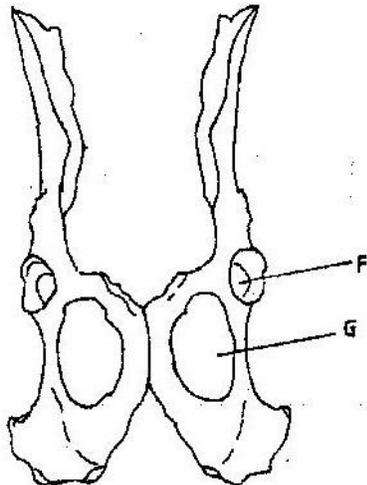


- (a) Identify the tissue ( 1 mk)

- (b) State the functions of the tissue named (a) above (1mk)
20. (a) what is a single circulatory system (1 mk)  
 (b) Name an organism which has single circulatory system (1 mk)  
 (c) Name the opening to the chamber of the heart of an insect (1 mk)
21. (a) What is seed dormancy (1 mk)  
 (b) Name a growth inhibitor in seeds (1 mk)
22. State two characteristics of aerenchyma tissue (1 mk)
23. The diagram below shows a human tooth (2 mks)



- (a) Identify the tooth (1 mk)
- (b) How is the tooth adapted to its function (1 mk)
- (c) State the role of the following vitamins in the human body  
 (i) C (1 mk)  
 (ii) K (1 mk)
24. Name the sites where light and dark reactions of photosynthesis take place (2 mks)  
 Light reaction  
 Dark reaction
25. Giving a reason in each case, name the class to which each of the following organisms (4 mks)  
 Bean plant  
 Reason  
 Bat  
 Reason
30. The diagram below shows two fused bones of a mammal



(a) Identify the fused bone

( 1 mk)

(b) Name the

(i) Bone that articulates at the point labelled F

( 1 mk)

(ii) The hole labelled G

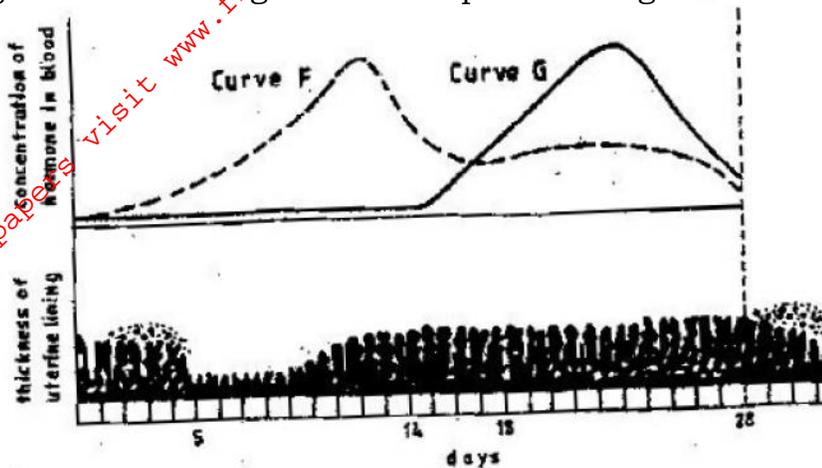
( 1 mk)

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**KCSE 2008 PAPER 2**  
**SECTION A (40 MKS)**

**Answer all the questions in this section in the spaces provided**

1. The figure shows changes that take place during menstrual cycle in human



- (a) Name the hormone whose concentrations are represented by curves F and G ( 2 mks)
- (b) State the effects of the hormones named in (a) above on the lining of the uterus ( 2 mks)
- (c) (i) Name the hormone which is released by the pituitary gland in high concentration on the 14<sup>th</sup> day of the menstrual cycle ( 1 mk)
- (ii) State two functions of the hormone named in (c) (I) above ( 2 mks)
- (d) State the fertile period during the menstrual cycle ( 1 mk)

2 A pea plant with round seeds was crossed with a pea plant that had Wrinkled seeds  
the gene for round seeds is dominant over that for wrinkled seeds

Using letter R to represent the dominant gene state:

- (a) The genotype of parents if plant with round seed was heterozygous ( 2 mks)
- (b) The gametes produced by the round and wrinkled seed parents  
Round seed parent  
Wrinkled seed parent
- (c) The genotype and phenotype of F<sub>1</sub> generation. Show your working ( 3 mks)
- (d) What is a test – cross? ( 1 mk)
3. The equation below represents a process that takes place in plants  
 $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- (a) Name the process ( 1 mk)
- (b) State two conditions necessary for the process to take place ( 2 mks)

(c) State what happens to the end- products of the process ( 5 mks)

4. (a) Give three reasons in each case why support is necessary in
- (i) Plants ( 3 mks)
  - (ii) animals ( 3 mks)
- (b) Why is movement necessary in animals ( 2 mks)

5. A freshly obtained dandelion stem measuring 5 cm long was split lengthwise to obtain two similar pieces

The pieces were placed in solutions of different concentrations in Petri dishes for 20 minutes.

The appearance after 20 minutes is as shown



- (a) Account for the appearance of the pieces in solutions L<sub>1</sub> and L<sub>2</sub>( 6 mks)
- (b) State the significance of the biological process involved in the experiment ( 2 mks)

**SECTION B (40 Marks)**

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

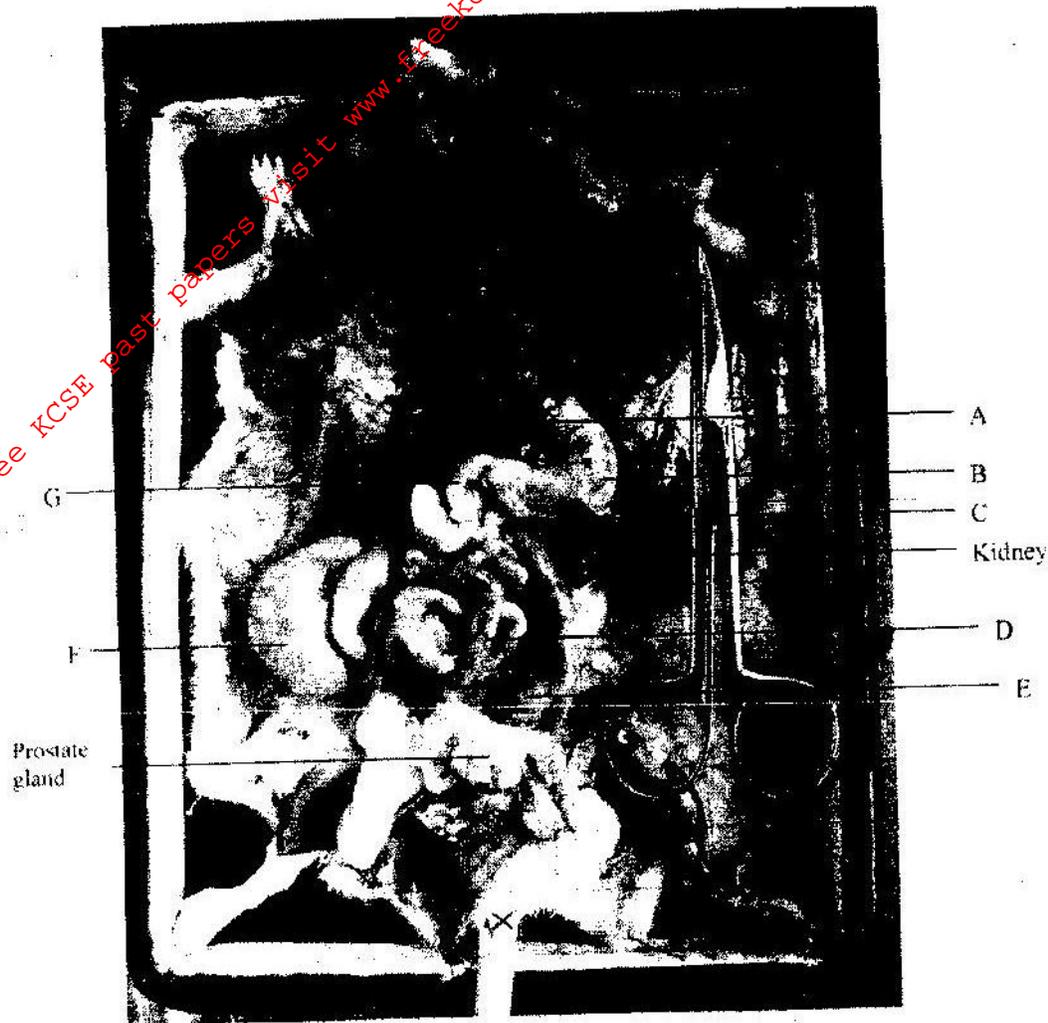
6. an experiment was carried out to investigate transpiration and absorption of water in sunflower plants in their natural environment with adequate supply of water. The account of water was determined in two hour intervals. The results are as shown in the table below

Time of day	Amounts of water in grammes	
	Transpiration	Absorption
11 00 - 13 00	33	20
13 00 - 15 00	45	30
15 00 - 17 00	52	42
17 00 - 19 00	46	46
19 00 - 21 00	25	32
21 00 - 23 00	16	20
23 00 - 01 00	08	15
01 00 - 03 00	04	11

- (a) Using the same axes, plot graphs to show transpiration and absorption of water in grammes against time of the day ( 7 mks)
- (b) At what time of the day was the amount of water the same for transpiration and absorption? ( 1 mk)
- (c) Account for the shape of graph of:
- (i) Transpiration ( 3 mks)
  - (ii) Absorption ( 3 mks)
- (d) What would happen to transpiration and absorption of water if the experiment was continued till 05 00 hours? ( 2 mks)
- (e) Name two factors that may affect transpiration and absorption at any given time (2 mks)
- (f) Explain how the factors you named in (e) above affect transpiration ( 2 mks)
7. Describe the nitrogen cycle ( 20 mks)
8. (a) State four characteristics of gaseous exchange surfaces ( 4 mks)
- (b) Describe the mechanism of gaseous exchange in a mammal ( 16 mks)

**KCSE BIOLOGY 2008 PAPER 3 QUESTIONS  
PRACTICAL**

Below is a photograph of a dissected mammal. Examine the photograph



- (a) Name the parts labeled A, B, C D and G ( 5 mks)
- (b) State the function of the structures labeled E and F ( 1 mk)
- (c) In the photograph label the structure where vitamin K is produced ( 1 mk)
- (d) (i) Name the sex of the mammal in the photograph ( 1 mk)  
 (ii) Give a reason for your answer in (d) (i) above ( 1 mk)
- (e) (i) The actual length of the dissecting scissors in the photographs is 15 cm  
 Calculate the magnification of the photograph ( 2 mks)
- (ii) Calculate the actual length of the mammal from the tip of the nose to point X on the tail ( 2 mks)

2. You are provided with substance labeled S, T, U, X and Y. S, T and U are food substance. While X is 10% sodium hydroxide solution and Y is 1% copper sulphate solution. Carry out tests to determine the food substance (s) in S, T and U. (9 mks)

Substance	Food substance being tested for	Procedure	Observations	Conclusion
S				
T				
U				

3. Below are photographs of specimens obtained from plants. Examine the photographs



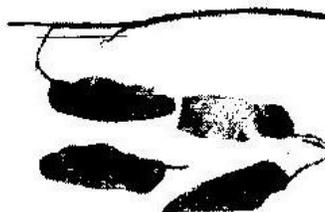
SPECIMEN K



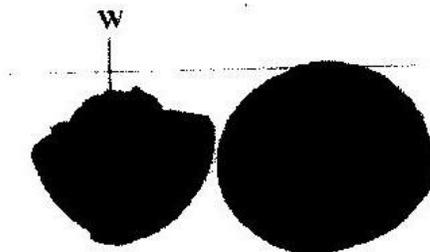
SPECIMEN L



SPECIMEN M



SPECIMEN N



SPECIMEN P



SPECIMEN Q

In the table below name the mode of dispersal and the features that adapt the specimen (s) to that mode of dispersal. ( 12 mks)

Specimen	Mode of dispersal	Adaptive features
K		
L		
M		
N		
P		
Q		

- (a) (i) Label any two parts on specimen L ( 2 mks)  
(ii) State the type of placentaion in specimen L ( 1 mk)
- (b) Name the structure labeled W on specimen P ( 1 mk)

### **BIOLOGY PAPER 1 YEAR 2009**

- (a) Name the external feature which is common in birds, fish and reptiles ( 1 mk)  
(b) State two characteristics of fungi ( 2 mks)
- Name two befits that a parasite derives from the host ( 2 mks)
- State the functions of the following parts of a light microscope ( 2 mks)

(a) Objective lens

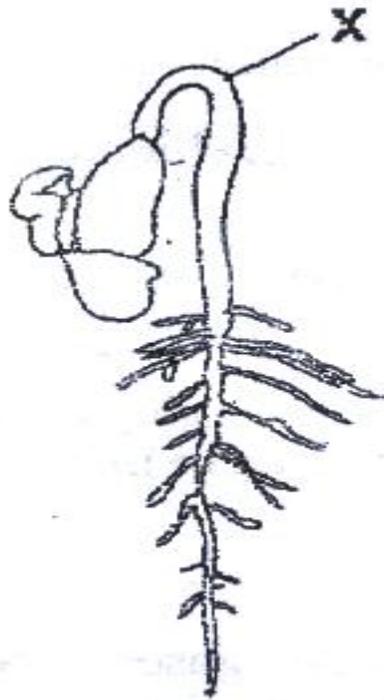
(b) Diaphragm

4. (a) The state during which a seed cannot germinate even when conditions for

Germination are suitable is called

( 1 mk)

(b) The diagram below represents a stage during germination of a seed



(i) Name the type of germination illustrated in the diagram

(

1mk)

(ii) State the role of the part labeled x during germination of the seed ( 2

mks)

5. (a) What is meant by the following terms