

NAME:.....INDEX NO:.....
SIGNATURTE:.....DATE:.....

231/1

BIOLOGY

PAPER 1

THEORY

MARCH/APRIL 2010

2 HOURS

THE ELDORET EAST INTER SCHOLL EXAMINATION-2010

Kenya CERTIFICATE OF Secondary Education.

FORM FOUR

231/1

BIOLOGY

PAPER 1

THEORY

MARCH/APRIL 20101

2 HOURS

INSTRUCTIONS TO CANDINDATES;

Answer All the questions in this paper ion the spaces provided

The Ppaer caries 80 marks.Check for any6 unprinted pages before starting to work.

Fro Examinaers use only.

Qusetion	Maximum Score	Candidate's Score
1-30	80	

This paper consists of 8 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

1. State two importance of studying Biology (2mks)

2.Name the excretory products of mnarine fish,give reasons for your answer(2mks)

3.(a) Name any two organic waste products in plants(2mks)

4.Explain how the following are adapted to their functions

(a) Guard cells (2mks)

(b) Aerenchyma tissue (2mks)

5.A students wrote the scientific name of the famililaris refer to?

(a) Which rules were not obeyed in writing the name?(2mks)

(b) Which taxonomic group does the famililarisrefer to?

6.Name the locomotory structure of most members of Monera Kingdom(1mk)

7. What type of variation is exhibited by the ability of man to roll or not roll the tongue. (1mk)

8. The diagram below shows the base sequence of the part of a nucleic acid strand. Observe it and answer the questions that follow

G T T A G C T G A

(a) With reasons, identify the type of nucleic acid (2mks)

(b) Show the complementary RNA STRAND (1 MK)

9. What name is given to: (2mks)

(i) Structures in animals that have become reduced in size until they are functionless

(ii) Structures that have undergone modification to adapt the organism to similar ecological niches

10. State two evidences of organic evolution (2mks)

11. (a) Define the term homeostasis (1mk)

(b) Explain the effect of rise in body temperature above normal to body processes(1mk)

12. Explain why land animals produce hardly ammonia in their urine(2mks)

13. Give the function of the following organs in digestion(2mks)

(i) The tongue

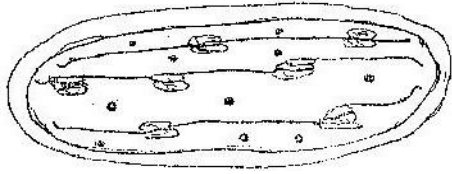
Oesophagus

(ii) the

14. state the advantage of storing carbohydrates in the form of glycogen in animals body (1mk)

15. Name two nutrients which do not require digestion before they are absorbed into human system(1mk)

16. Use the following figure to answer the question that follow



(a) State the role of the organelle(1mk)

(b) Give two ways in which the organelle is adapted to its functions(2mks)

- (i) _____
- (ii) _____ 17.

State the importance of staining materials when viewing under a light microscope(1mk)

18. Define the terms(2mks)

(i) Imbibition

(ii) Ecdysis

19. (i) State the role of Juvenile hormone during meitrophosis in insects(1mk)

(ii) Name the glands that produces the Juvenile hormone(1mk)

20. Name the tissues that produce (2mks)

(a) Semen in males

(b) Testosterone hormone

21. Explain

why:

(a) Amphibians have to return to water during reproduction (2mks)

(b) Oxygen is important in the process of active transport in cells (2mks)

22. Name the two main antigens that determine human blood groups (2mks)

23. (a) (i) One enzyme that occurs in the mammalian red blood cells (RBC) (1MK)

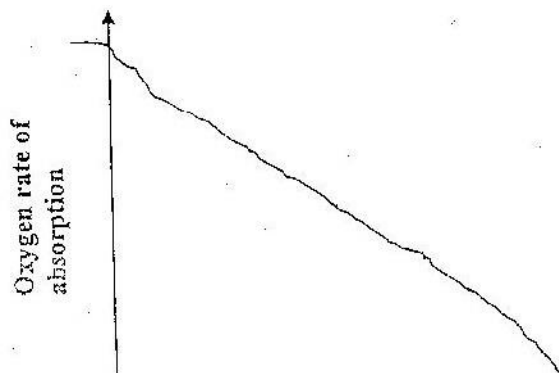
(ii) State the role of the enzyme named in (i) above

(b) Name a human disease that mainly attacks the following blood cells (2mks)

(i) Red Blood Cells

(ii) White blood cells

24. The graph below shows the rate of oxygen absorption by a Hydra as it grows



(a)(i) What is the relationship between volume of hydra and the rate of oxygen absorption(1mk)

_____ (ii) Give a

reason for your answer in (i) above(2mks)

_____ (b) which substances
in your cigarette smoke causes lung cancer(1mk)

_____ 25(a) Define

the terms:(1mk)

(i) Biomass(1mk)

_____ (ii)

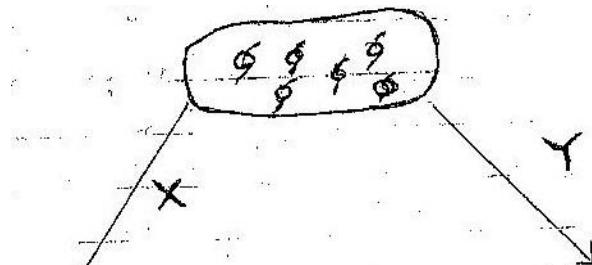
Biosphere(1mk)

_____ (b) Explain

why primary productivity in aquatic ecosystem decrease with depth(2mks)

_____ 26.(a) In what two
ways is self-pollination not possible in some plants(2mks)

(b) The figure below shows the nucleus of a diploid cell during early prophase and the daughter cell formed after a cell division.



(i) Which type of cell division will result in the formation of the daughter cells represented by X and Y(2mks).

(ii) Identify

the parts of a flower where process X Takes pace(2mks)

27.(a) What is meant by the term binomial nomenclature(1mk)

(b) Give one

reason why classification is important(1mk)

28.(a)Name two products of the light reaction stage in photosynthesis(2mks)

Explain the processOf reaction that takes place when Sugars combine to form complex sugar(1mk)

(i)

(ii)Comple sugar is broken to form simple sugar(1mk)

29. (a) State two ways in which the xylem are dapted to their functions(2mks0

(b) Explain how the following plants adaption minimize rate of transpiration(2mks)

(a0 sunken Stomata

(b) Leaf Folding

30(a) Explain themeaning of Basal metabolic rate(BMR)(1mk)

(b) What is the economic importance of anaerobic respiration(2mks)

(c) Name the compound that stores energy relsead during oxidation of glusoce(1mk)

(d) Other than carbon(IV) oxide,name the other products of anaerobic respiration in plants(1mk)

NAME:.....INDEX NO:.....
SIGNATURTE:.....DATE:.....

231/2
BIOLOGY
PAPER 2
THEORY
MARCH/APRIL 2010
2 HOURS
THE ELDORET EAST INTER SCHOLL EXAMINATION-2010
Kenya CERTIFICATE OF Secondary Education.
FORM FOUR

231/2
BIOLOGY
PAPER 2
THEORY
MARCH/APRIL 20101
2 HOURS

INSTRUCTIONS TO CANDIADTSE

- Write your name and **Index Number** in the spaces provided above **sign** and **write** the date of examination in the spaces provided abocve.
- This paper consists of two sections.A and B. Answer all the question in section A in the spaces provided.
- In section B Answer *Qusetion 6(compulsory)*in the spaces provided and either question 7 or 8 in the spaces provided after question 8.

For Examination Use Only.

QUSETIONS	MAX SCORE	CANDINDATE SCORE
1	8	
2	8	
3	8	
4	8	
5	8	
6	20	
7	20	
8	20	
TOTALS	80	

This paper consists of 8 printed pages

Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions rae missing.

1. Haemophilia is a sex-linked genetic disorder due to a recessive gene. A man who is haemophiliac marries a woman who is a carrier for the condition.

(a) Using the letter H to represent the normal condition and h for haemophiliac condition

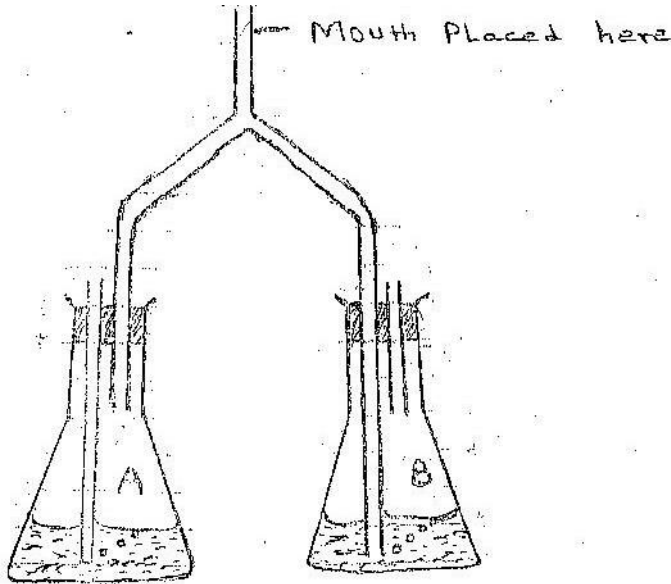
(i) What is the genotype of the man and the woman? (2mk)

(ii) Work out a cross between the man and the woman above (3mks)

(b) Why is haemophilia more common in males than in females? (2mks)

(c) Name two charactersistics linked to the Y-Chromosome (2mks)

2. The diagram below illustrates an experiment to show that there is much more carbon(IV) oxide in exhaled air than inhaled air:



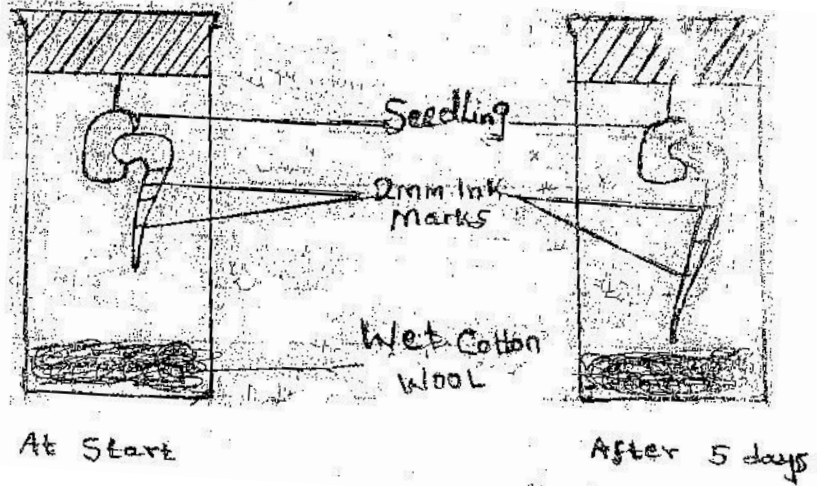
(a) Name the liquid in flask A and B (1mk)

b) What would you expect to observe after breathing in and out through the apparatus for five minutes (2mks)

(c) Explain the observation in (b) above (3mks)

(d) Explain why it is more advantageous to breathe through the nose than the mouth (2mks)

3. An experiment was set up with a bean seedling as shown in the diagram below. Water proof ink was used to mark 2mm marks from the root tip. The seedlings were then suspended in a moist glass container for 5 days.



(a) Suggest the possible aim of this experiment (1mk)

(b) Which region of the root

(i) Showed no growth (1mk)

(ii)

Showed increase in length

(c)

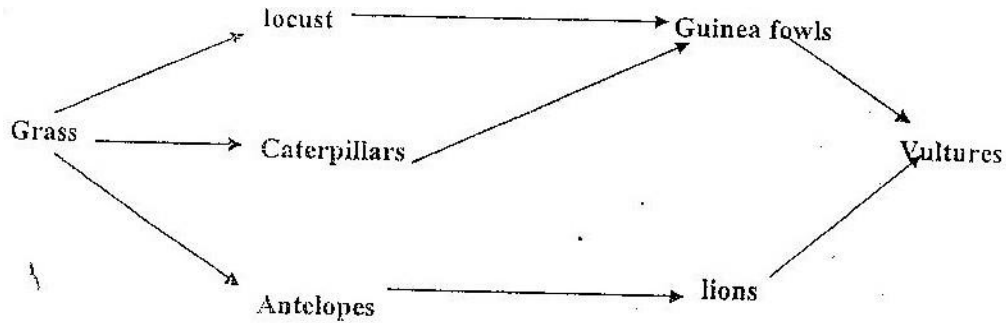
Explain

(i) Why some part of the radicle did not grow (2mks)

(ii) Why some part of the radicle grew (2mks)

_____ (iii) Why wet cotton was used
in the experiment(1mk)

_____ 4. Study the
food web below representing a certain ecosystem and use it to answer the questions that follow



(a) Distinguish between a food chain and a food web(1mk)

_____ (b) With a
reason name the organism that would have the largest biomass
Organism(1MK)

Reason(2mks)

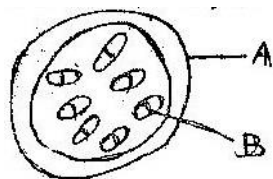
c) Write down a food chain in which the vultures are tertiary consumers (1 mk)

d) What would be the effect of introducing gazelles and termites into the ecosystem (1mk)

e) State the trophic level occupied by the vultures in the food web (1 mk)

f) What would be the role of bacteria in this ecosystem (1mk)

5. The diagram below represents across section of part of a certain plant



a) State the class of the plant from which the plant section was taken. (1mk)

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

c) What is the function of pith in a plant (1mk)

d) Name the parts labeled A and B (2mks)

e) Name two substances that are absorbed by the root hairs and transported to all parts of the plant

(1mk)

f) Give two primary functions of the root (2mks)

SECTION B

Answer question 6 and choose one from 7 and 8

6. The quantity of urine produced per hour by three animals A B and C was determined. These animals were in their natural habitats. The results are as shown in the table below

Time in hour	0	1	2	3	4
A	20ml	15ml	10ml	22ml	18ml
B	4ml	6ml	8ml	7ml	6ml
C	3ml	2ml	2ml	2ml	2ml

a) Plot on the same axes graph of amount of urine produced against time

b) (i) Which of three animals was likely to be excreting urine very rich in ammonia (1mk)

(ii) Give a reason for your answer in b(i) (2mks)

c) (i) Which of the animals was likely to be living in desert environment (1mk)

(ii) Give a reason for your answer in c(ii) above (2mks)

d) State 2 structural differences expected in the nephrons of animals A and C (2mks)

e) Explain how ingestion of every salty food may affect the quantity of urine produced (2mk)

f) State any two kidney diseases (2mks)

7. a) Define the terms: (2mks)

(i) Menstruation

(ii) Menstrual cycle

b) Describe the role of hormone involved in the menstrual cycle (18mks)

8.a) Explain adaptations of a leaf to the process of photosynthesis (12mks)

b) Describe factors affecting the rate of photosynthesis (8mks)

NAME.....INDEX NO.....
SIGNATURE.....DATE.....

231/3
BIOLOGY
PAPER 3
PRACTICALS
MARCH/APRIL 2010
13/4 HOURS

THE ELDORET EAST INTER SCHOOL EXAMINATION- 2010
Kenya Certificate of Secondary Education

FORM FOUR
231/3
BIOLOGY
PAPER 3
PRACTICALS
MARCH/APRIL 2010
13/4 HOURS

INSTRUCTIONS TO CANDIDATES

- You are advised to spend the first 15 minutes reading through the paper before commencing on your work
- Candidates may be penalized for recording irrelevant information and wrong spelling especially of technical terms.

For Examiners only

Question	Maximum score	Candidate's score
1	15	
2	13	
3	12	
TOTAL	40	

This paper consists of 4 printed pages
Candidates should check the question paper to ascertain that all pages are printed as indicated and no questions are missing

1. You are provided with two solutions labeled B and K and an empty Petri dish. Using a cork borer, make three cylinders from the Irish potato provided. Cut them to measure EXACTLY 30mm. treat the potato cylinders as follows:

- Place one in air on an empty Petri dish
- Place one in solution K in a Petri dish
- Place one in solution B in a Petri dish

After 30 minutes, dry the cylinders using a tissue and measure their lengths.

a) (i) Record your observations in the table below (3mks)

Cylinder in	Observation on length
Air	
Solution K	
Solution B	

(ii) From your observation in a (i) above state the nature of solution K and B (2mks)

Solution K _____
Solution B _____

(ii) Why was the potato cylinder placed in air included in the experiment (1mk)

b) Account for the change in the length of the potato cylinder placed in;

(i) Solution K (3mks)

(ii) Solution B (3mks)

b) Name the physiological process that was taking place in this experiment (1mk)

c) (i) What would happen if the potato cylinders were first boiled before putting them in the solutions K and B (1mk)

(ii) Give a reason for your answer in d (i) above (1mk)

2. You are provided with specimens labeled P and Q. Examine them.

a) Giving reasons state the phylum of the specimen

Phylum

(1mk)

Reasons

(3mks)

b) (i) Name the class to which the specimens belong

(1mk)

(ii) State the features common to both specimens that are characteristics of the class in b(i) above

(3 mks)

c) State the differences between specimen P and Q

(3mks)

d) State any two economic importances of members of the class mentioned in b (i) above

3. The figure below is a photomicrograph part of a cell. Study it carefully and answer the questions that follow(mg x 40000)



a) Name the cell organelles (4mks)

A _____

B _____

C _____

F _____

b) State the functions of the parts labeled (2mks)

E _____

F _____

c) State one way in which structures labeled A and D are suited to their functions (2mks)

A _____

D _____

d) Giving a reason, state whether this cell was undergoing or not undergoing cell division (dividing or non-dividing stages) (2mks)

Stage:

Reason

c) Calculate the actual length of the organelle labeled A in microns. Show your working (2mks)