NAME: _____ INDEX NO. _____

DATE: _____ CANDIDATE'S SIGN: _____

MARANDA HIGH SCHOOL

MOCK EXAMS JULY AUGUST, 2013

231/1

BIOLOGY

PAPER 1

(THEORY)

2 HOURS.

JULY 2013

Instruction to Candidates

1. Write your name and Index Number in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. Answer All the questions in section A in the spaces provided.

For Examiner's Use Only.

Question	Maximum Score	Candidates Score
1-30	80	
TOTAL		

1. State two uses of lipids in a cell (2 mks)

2. A patient was suffering from defects of the pancreas. Explain what would happen.(2 mks)

3. (a) Name the tissue that is found in all mammalian blood vessels. (1 mk)

(b) State two structural similarities between aorta and vena cava. (2 mks)

4. Name the spore producing structures in (2 mks)

(a) Bryophta

(b) Preridophyta

5. Give the causative organisms of the following diseases (2 mks)

Diseases	Causative agent
Amoebic dysentery	
Typhoid	

6. What is the probability of a couple with blood group AB getting a child with blood group AB? Show your working. (4 mks)

7. Name the organelle one would expect to find in large numbers within a gland. (1 mk)

8. The leaf of Tradescantia is purple.
   (a) What makes it purple? (1 mk)

   (b) Why do ageing leaves turn yellow. (1 mk)

9. (a) Name the principle requirement of filtration that forms glomerular filtrate. (1 mk)

(c) How is the requirement in (a) above achieved in the kidney. (2 mks)

10. (a) By what metabolic process would water be made available from the fat? (1 mk)

(b) Carbohydrates could be used as a source of water in the same process. What advantage does fat have over carbohydrate? (2 mks)

11.(a) Name the part of the brain that regulates breathing. (1 mk)

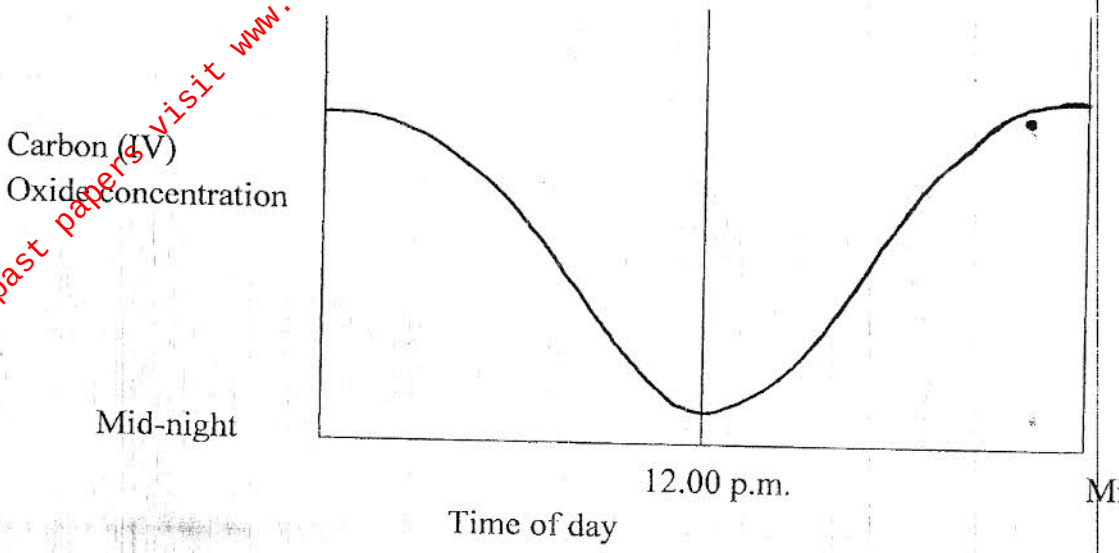
(b) Give two ways through which the body responds to increased concentration of carbon (IV) oxide. (2 mks)

12.(a) Where does deamination take place? (1 mk)

(b) What is the immediate nitrogenous waste product in the above process? (1 mk)

13. Give three characteristics of the inverted pyramid of biomass (3 mks)

14. The concentration of carbon(IV) oxide in a tropical forest was measured during the course of 24 hour period from mid-night to mid-night.



Account for the results obtained at mid day. (2 mks)

15. Explain how panting assists in regulation of body temperature in a dog. (2 mks)

16. (a) Name the type of muscle found on the walls of the alimentary canal (1 mk)

(b) State two functions of the muscle mentioned in (a) above. (2 mks)

17.(a) Name the type of growth caused by the inter-vascular cambium and the cork cambium (1 mk)

(b) What is the functional difference between the tissues named in (a) above? (1 mk)

18.(a) State one role of m – RNA in living cells. (1 mk)

(c) Below is base sequence in a section of a DNA.

A – T – G – C – T – A

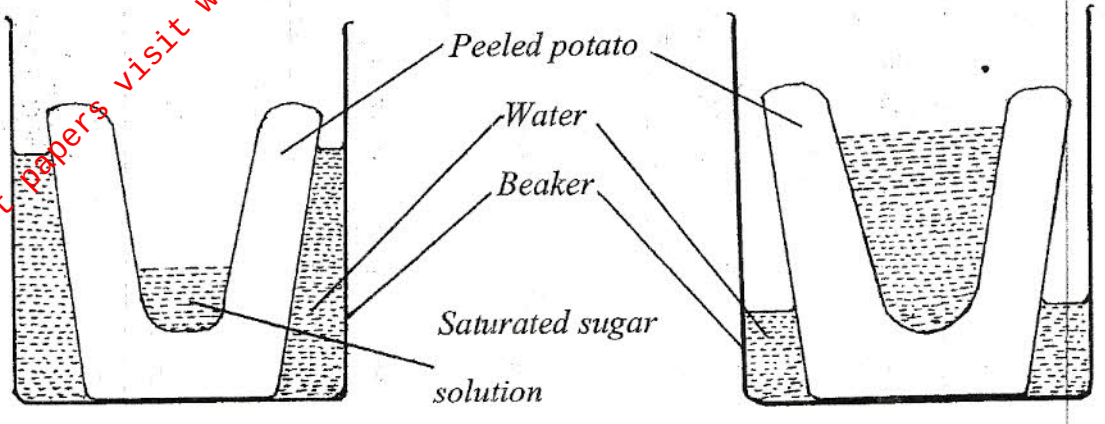
Work out the base sequence of RNA copied from the above strand. (1 mk)

19.Explain how the following structures act as evidence of organic evolution.

(a) Homologous structures (2 mks)

(b) Vestigial structures (1 mks)

20. The diagrams below show an experimental set-up to investigate a certain process in a plant tissue.



Set up start Of the experiment *Same set-up after 30 minutes*

Explain the results obtained after 30 minutes.

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_____

_____

_____

21. In an experiment , its observed that when maggots are exposed to light, they move to dark areas. On the other hand, Euglena and chlamydomonas move towards light.

(i) Name the type of response exhibited by the organism. (1 mk)

_____

_____

_____

(ii) State one advantage of the response shown by Euglena and chlamydomonas (1mk)

_____

_____

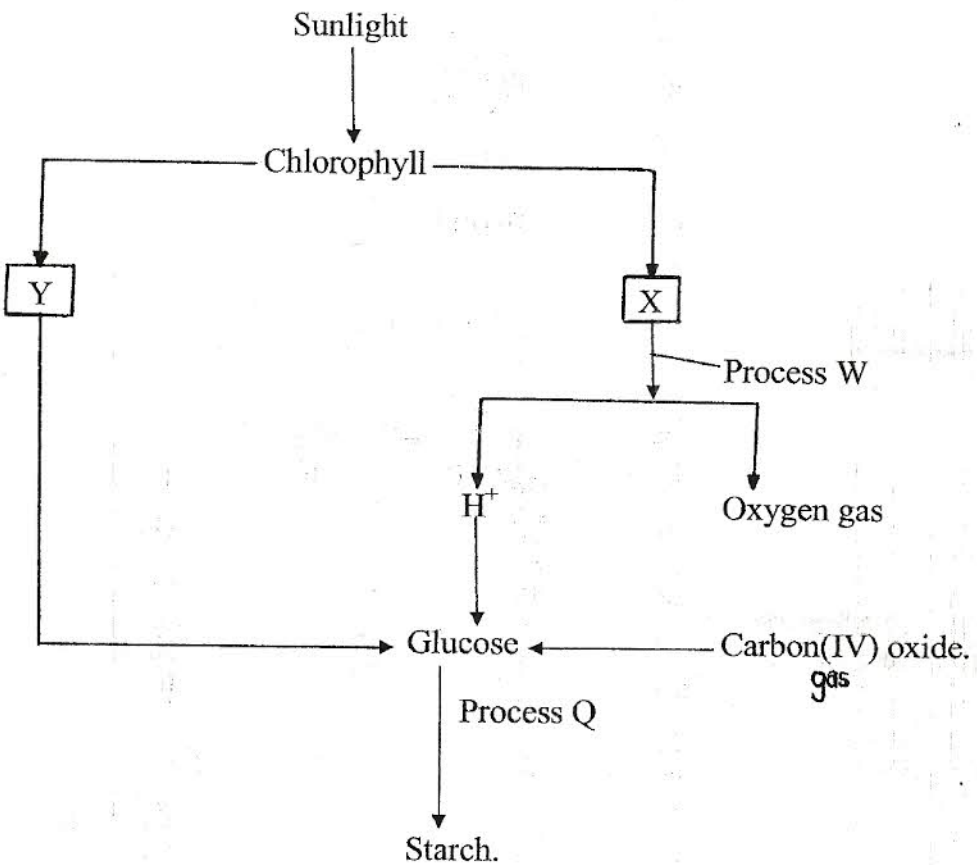
22. (i) If the corpus luteum breaks down prematurely in pregnancy, a miscarriage is likely result. Explain (2 mks)

(iii) State the role of the following hormones during lactation in mammals. (2 mks)

(a) Oxytocin

(b) Prolactin

23. The chart below shows the process of photosynthesis.



(a) Name substances Y and X. (2 mks)

Y. _____

X. _____

(b) State the process labelled W and Q (2 mks)

W. _____

Q. _____

(c) State part of the chloroplast where process W occurs (1 mk)

_____

_____

(d) Other than synthesis of food, name other role played by photosynthesis in nature. (1mk)

_____

_____

_____

24. Explain the significance of the following features of a xylem tissue.

(i) Narrow lumen (1 mk)

_____

_____

_____

(ii) Lignified wall (1 mk)

_____

_____

_____

25. (a) State two features that enable members of the class Reptilia survive on land. (2 mks)

(b) Identify one class within the phylum chordata whose members shows external fertilization. (1 mk)

26. (a) Explain how leaf folding affects the rate of transpiration (2 mks)

27. State two reasons why staining is done during light microscopy. (2 mks)

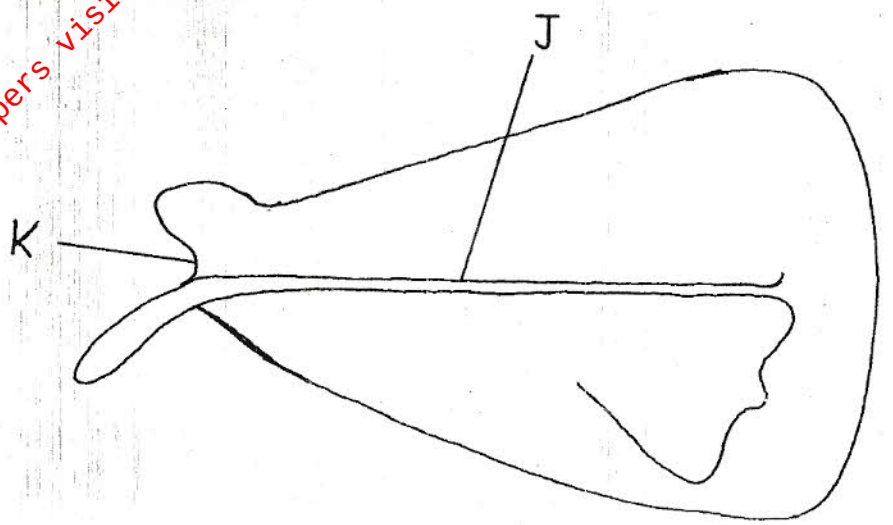
28. Two grammes of active yeast cells were placed in a boiling tube containing 20ml of 10% glucose solution. The boiling tube was then corked tightly and kept in a warm room for a couple of hours. Effervescence was seen in the boiling tube at the end of the experiment.

(a) Write a chemical equation to summarize the reaction in the boiling tube. (1 mk)

(b) State the role played by the yeast cells in this reaction. (1 mk)

(c) stinguish between wilting and plasmolysis. (2 mks)

29. The diagram below represents a bone obtained from a mammal.



(a) Name the bone

(b) Name the

(i) Bone which articulates with the bone named in (a) above at the cavity labelled K. (1 mk)

(ii) Joint formed by the two bones (1 mk)

30 (a) The spread of the melanic form of the peppered moth (Biston betularia) through the industrial cities of Britain midway through the 20th century can be likened to the current spread of insecticide – resistant pest across most Kenyan farmlands. Both phenomena involve.

(1 mk)

(b)State the basis of comparative embryology in the study of evolution. (2 mks)