Name ..... Index No. .....

Date ..... Candidate's Signature .....

231/1
BIOLOGY
Paper 1
(THEORY)
JULY/AUGUST 2014
2 Hours

ALLIANCE GIRLS HIGH SCHOOL
BIOLOGY MOCK 2014
Paper 1
2 Hours

INSTRUCTIONS TO CANDIDATES

1. *Write your name and index number in the spaces provided*
2. *Sign and write the date of the examination in the spaces provided above.*
3. *Answer all questions in the spaces provided.*
4. *Additional papers must not be inserted*
5. *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*
6. *All working must be clearly shown where necessary.*

For Examiners Use Only

Questions	Maximum score	Candidates score
1 – 26	80	

This paper consists of 11 printed pages.

1. (i) Define the term homologous structure. (1mk)

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(ii) What is natural selection? (1mk)

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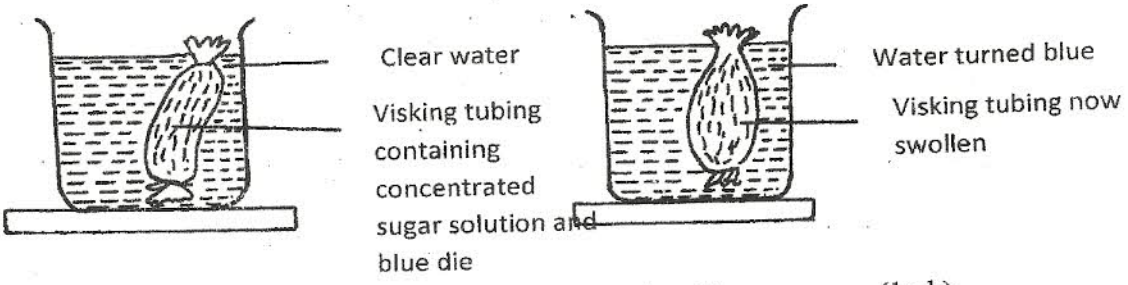
2. An experiment was set up using visking tubing, which was filled with concentrated sugar solution. The free ends were tightly tied to prevent leakage. It was immersed in a beaker containing distilled water. After six hours the observations were made.

Start of experiment **After 6 hours**



(a) Why did the visking tubing become swollen as shown in after 6 hours. (1mk)

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(b) By what physiological process did the water in the beaker turn blue? (1mk)

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3. In an investigation, the pancreatic duct of a mammal was blocked. It was found that the blood sugar regulation remained normal while digestion of food was impaired.

Explain this observation.....

.....(1mk)

4. Lamarcks theory of evolution has been rejected by scientist today. Explain why (1mk)

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5.An organism was found to process the following features, an exoskeleton, two pairs of antennae, bilateral symmetry and jointed appendages.
Giving a reason in each ease state the phylum and class in which the organism belongs. (4 marks)

Phylum
.....
Reason
.....
Class.
.....
Reason:
.....

6.Name the mechanisms that hinder self —fertilization in flowering plants. (3mks)

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7.a) State the function of granum in chloroplasts.....(1 mk)

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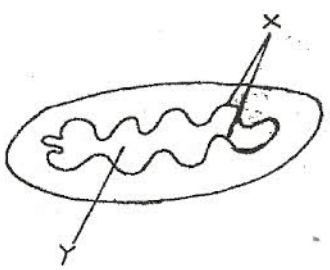
b) The diagram below represents a cell organelle.



(i) Name the part label x..... (2 mk)

y.....

(ii) State the function of the part labeled x

.....(1 mk)

8)Members of the same species of organisms tends to differ due to variation. State four causes of variation in organisms. (4mks)

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9)State the function of each of the following parts of the ear. (3mks)

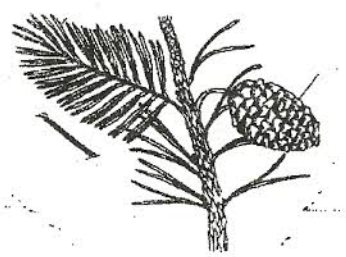
a)Ear ossicles.....

b) Auditory nerve.....

c) Tympanic membrane.....

10) i)Name the spore-producing structures in pteridophyta.....(1mk)

ii)The diagram below shows a species of a plant. Study it carefully and answer the questions to follow.



a) State the class to which the above specimen belongs.....(1mk)

Reasons.....

.....(1mk)

11.State two economic importance of the following excretory plant products

i) Caffeine in tea and coffee (2mk)

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ii) Quinine in bark of chikona tree (2mk)

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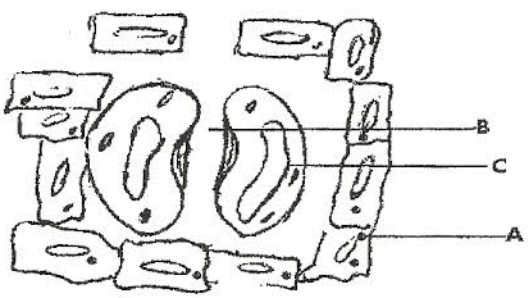
12.The figure below shows the epidermal cells from a plant tissue. **Study** it and answer the questions that follow.



(a) **Name** the parts labeled A and B (2mks)

A

.....

B

.....

(b)Give three differences between the cell with structure A and that with structure c

Cell with A	Cell with C
i)	
ii)	
iii)	

13.(a) **Distinguish** between a habitat and a niche. (2mks)

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(b)The relative rates of photosynthesis in a certain plant were determined at different temperatures. The results were as shown in the table below.

Temp. ^{0}C	Relative rate of photosynthesis (mg/hr)
25	20
30	70
35	100
40	25

Account for the rate of photosynthesis at

(i) 35^0 C (2mk)

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(ii) 40^0C (2mk)

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c) What is the effect of eating a meal with too much salt to urine production in man. (2mks)

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. 14. a) What is eye accommodation?) (1mk)

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15. Name the causative agent of cholera (1mks)

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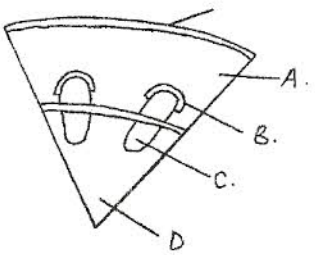
16. (a)What are the functions of the following parts in the mammalian stomach :-

(i) Goblet cells?.....(1 mk)

(ii) Chief (peptic) cells?.....(1 mk)

The diagram below shows a section of a dicotyledonous stem.



(b)Name the tissues marked A, B, C and D and state the function of each. (4 mks)

A.....
.....

B.....
.....

C.....
.....

D.....
.....

17.Name the type of response exhibited by the following:-

(i) A pollen tube growing towards embryo sac..... (1 mk)

(ii) Maggots moving from the lit side of a boiling tube to the side pointed black... (1 mk)

18. Bivalent, synapsis, crossing over are terminologies used in cell division.

(a) Name the stage of meiosis in which the above process occur. (1mk)

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(b) **Distinguish** between synapsis and crossing over. (2mks)

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19. During an experiment it was found that germinating bean seeds released $9.0cm^3$ of CO_2 and used $8.8cm^3$ of O_2

(a) Calculate the respiratory quotient (R.Q) (2mks)

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(b) State the type of respiration occurring? (1mk)

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19. Define speciation. (1mk)

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b) State two mechanisms that lead to speciation. (2mks)

(i).....

(ii)

.....

20. Collenchyma cells remain strong and maintain their shape even when completely dry. Explain (1mk)

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.....

21. State **two** characteristics of skeletal muscles. (2mks)

(i).....

(ii).....

.....

22. State the role of decomposers in an ecosystem. (1mk)

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23. **What** is biological control of population growth? (1mk)

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(ii) **Explain** why the number of predators in an ecosystem is less that the number of their prey. (2mks)

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24. i) **List four** causes of seed dormancy and in each case state the way of breaking it.(4mks)

a).....
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b).....
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c).....
.....

d).....
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(ii) **Explain** the change that takes place at the beginning of germination. (2mks)

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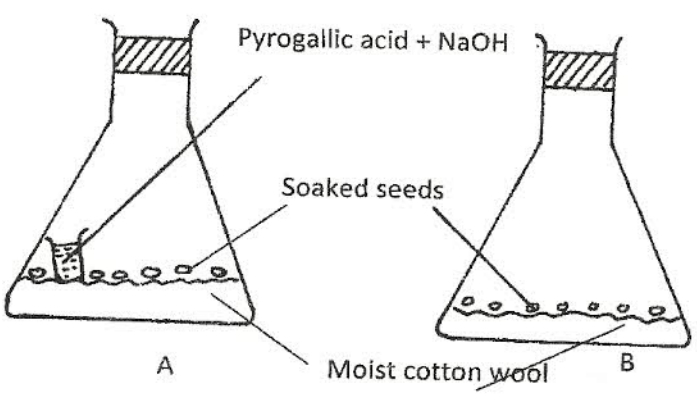
25.A student set up an experiment as shown in the figure below.



The set-up was left at room temperature for six days.

a) What was the aim of the experiment? (1mk)

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b) Explain the expected results after six days. (3mks)

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26. A certain plant was found to have 22 chromosomes in it's calyx cells. State the number of chromosomes present in the plants.

a) Ovule.....

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b) Endosperm

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..... (2mks)

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