

Name
231/2
BIOLOGY
Paper 2
(Theory)
March 2013
2 hours

Class
Adm.No.
Index No.
Candidate's Signature
Date

ALLIANCE GIRLS HIGH SCHOOL
PRE-MOCK EXAMINATION
BIOLOGY
Paper 2
(Theory)
2 hours

Instructions

*Write your name and index number in the spaces provided above.
Sign and write the date of examination in the spaces provided above.
Answer ALL the questions in the spaces provided.*

FOR EXAMINER

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1 – 8	80	

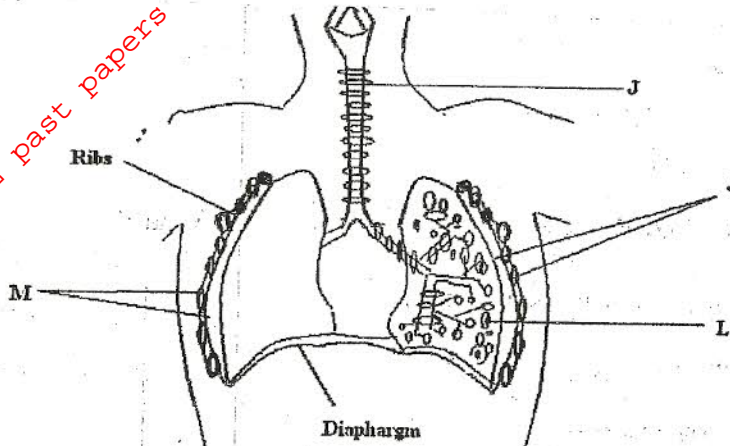
This paper consists of 10 printed pages.

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

SECTION A (40MARKS)

Answer ALL questions in this section in the spaces provided.

1. The diagram below represents some gaseous exchange structures in humans.



a) Name the structures labelled K, L and M. (3marks)

K

L

M

b) How is the structure labelled J suited to its function? (3marks)

c) Name the process by which inhaled air moves from the structure labelled L to the blood capillaries. (1mark)

d) Give the scientific name of the organism that causes tuberculosis. (1mark)

2. a) Explain what happens to amino acid in the liver of man. (3marks)

b) Which portions of human nephron are only found in cortex. (3marks)

c) i) What would happen if a person produces less anti diuretic hormone. (1mark)

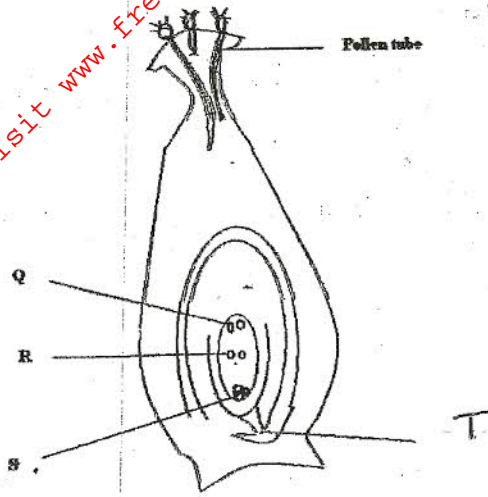
ii) What term is given in the condition described in c (i) above. (1mark)

3. a) What is meant by the following terms;

i) Protandry (1mark)

ii) Self-sterility (1mark)

b) The diagram below shows a stage during fertilization in a plant.



i) Name the parts labeled Q, R and S. (3marks)

Q

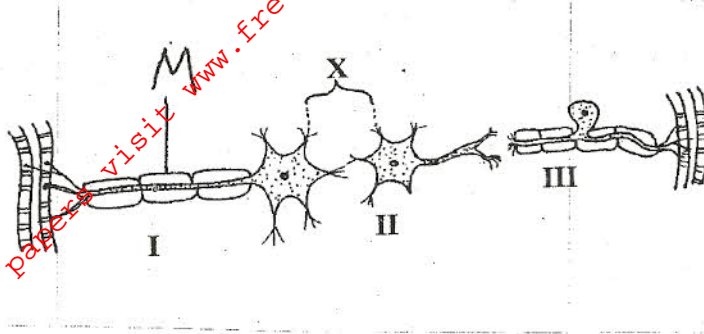
R

S

ii) State two functions of the pollen tube. (2marks)

c) Which part in the diagram, represents the micropyle? (1mark)

4. The diagram below represents three types of neurons found in a mammalian body.



a) Name the neurons, I, II and III. (3marks)

I

II

III

b) Name the chemical substance responsible for the transmission of an impulse across the gap labelled X. (1mark)

.....

c) State two functions of the part labelled M. (2marks)

.....

d) In which part of the spinal cord is neuron II located? (1mark)

.....

e) Using arrows indicate on the diagrams the direction followed by nerve impulse leading to a response. (1mark)

5. In maize the gene for purple colour is dominant to the gene for white colour. A pure breeding maize plant with purple grains was crossed with a heterozygous plant.

a) (i) Using letter G to represent the gene for purple colour, work out the genotypic ratio of the offspring. (5marks)

- (ii) State the phenotype of the offspring. (1mark)
- b) What is genetic engineering? (1mark)
- c) What is meant by hybrid vigour? (1mark)

SECTION B (40MARKS)

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

6. In an experiment to determine the effect of ringing on the concentration of sugar in phloem, a ring of bark from the stem of a tree was cut and removed. The amount of sugar in grammes per 16cm^3 piece of bark above the ring was measured over 24 hour period. Sugar was also measured in the bark of a similar stem of a tree which was not ringed. The results are shown in the table below.

Time of the day	Amount of sugar in grammes per 16cm ³ piece of bark	
	Normal stem	Ringed stem
06 45	0.78	0.78
09 45	0.80	0.91
12 45	0.81	1.01
15 45	0.80	1.04
18 45	0.77	1.00
21 45	0.73	0.95
00 45	0.65	0.88

a) Using the same axes, plot a graph of the amount of sugar against time. (6marks)

b) At what time was the amount of sugar highest in the

i) Ringed stem

(1mark)

ii) Normal stem?

(1mark)

c) How much sugar would be in the ringed stem if it was measured at 03 45 hours?

(1mark)

d) Give reasons why there was sugar in the stems of both trees at 06 45 hours. (2marks)

e) Account for the shape of the graph for the tree with ringed stem between:

i) 06 45 hours and 15 45 hours

(3marks)

ii) 15 45 hours and 00 45 hours.

(2marks)

f) Other than sugars, name two compounds that are translocated in phloem. (2marks)

g) State how the phloem is adapted to the process of translocation.

(2marks)

7. Describe the structure and functions of the various parts of the human ear. (20marks)

8. Describe causes and methods of controlling water pollution. (20marks)

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