

Adm.no.....Name.....Class.....

**FORM FOUR BIOLOGY END OF TERM 1 EXAM.**

**BIOLOGY PAPER 2 TERM1 2015.**

**Time 2 Hours**

**SECTION A: Answer ALL the questions in this section in the spaces provided.**

1. A pure breed red flowered plant was crossed with a pure breed white flowered plant. The F1 generation had all pink flowers. When the F1 generation was selfed, 1600 plants were obtained in the F2 generation.
- (a) (i) Identify the type of dominance demonstrated by the colour of the flower. (1mk)
- (ii) Give a reason for your answer in a(i) above. (1mk)
- (b) Using letter R to represent the gene for red colour and r for white colour, work out the possible genotypes for the F2 generation. (4mks)
- (c) Work out the number of plants in the F2 generation. (Show your working).
- (i) Pink flowers. (1mk)
- (ii) Red flowers. (1Mk)

2. a) Define the following :

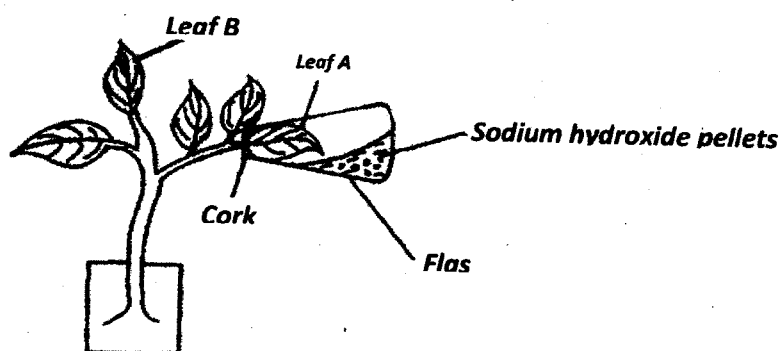
(i) Photosynthesis.

(1mk)

(ii) Chemosynthesis.

(1mk)

(b) Study the diagram below and answer the questions that follow.



(i) What is destarching?

(1mk)

(ii) Giving reasons state the expected results when leaf A and leaf B are tested for starch.

Leaf A

(3mks)

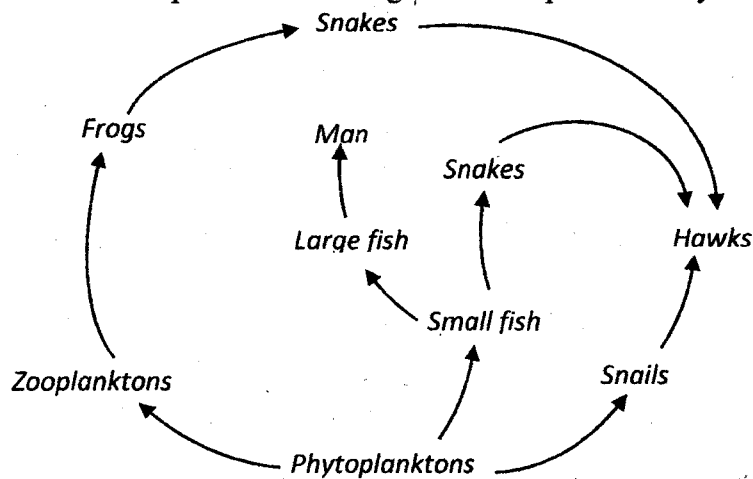
Reason

Leaf B

(2mks)

Reason

3. The diagram below represents a feeding relationship in an ecosystem.



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

(b) Name the type of ecosystem represented by the above food web. (1mk)

(c) Name the organisms in the food web that are producers. (1mk)

(d) i) Write food chain that ends with the hawk as a tertiary consumer. (1mk)

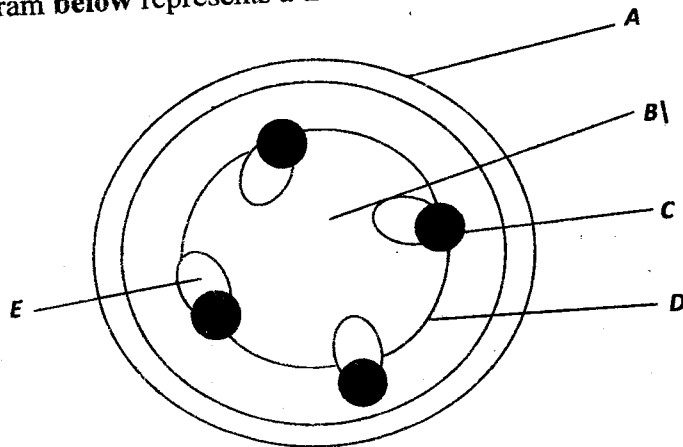
ii) State **two** short term effects on the above ecosystem if all the small fish were killed (2mks)

(e) How does oil spills lead to death of fish. (1mk)

(f) Name the method you would use to estimate the population of small fish in the ecosystem.

(1mk)

4. The diagram below represents a transverse section of a young stem.



(2mks)

(a) Name the parts labeled A and B.

(2mks)

(b) State the functions of the parts labeled C and D.

(1mk)

(c) Name the compound that dissociates to release oxygen in humans.

(1mk)

(d) What is tissue fluid?

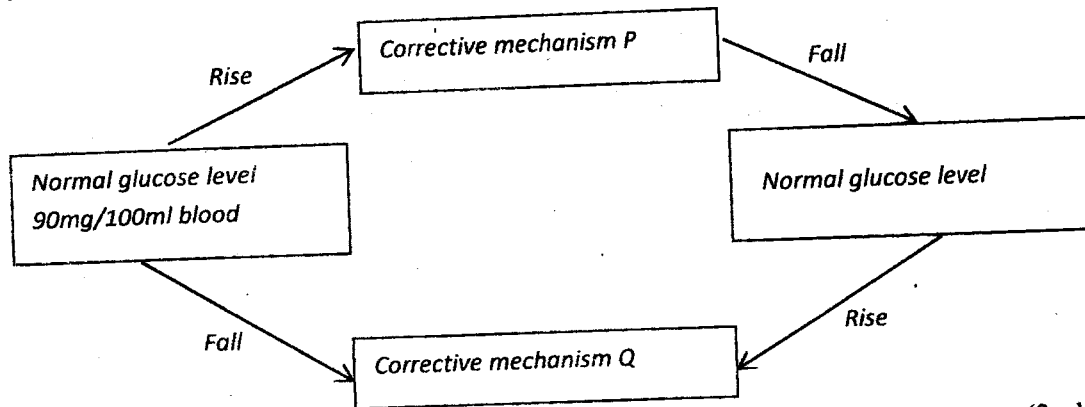
(1mk)

(e) Name the blood vessel that has the highest concentration of urea.

(1mk)

(f) Name the blood vessel that nourishes the heart.

5. The diagram below shows how blood glucose in mammalian body is regulated.



(3mks)

(a) Explain what happens during corrective mechanism P.

(b) Name **two** organs involved in corrective mechanisms P and Q.

(2mks)

(c) Why should glucose level be maintained constant?

2mks)

(d) What is osmoregulation?

(1mk)

**SECTION B: (40 MARKS)**

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

6. The table below shows the growth pattern in a certain group of organism

|             |   |   |    |    |    |    |    |    |    |    |     |
|-------------|---|---|----|----|----|----|----|----|----|----|-----|
| Mass (mg)   | 5 | 5 | 5  | 14 | 14 | 26 | 26 | 38 | 38 | 52 | 52  |
| Time (days) | 0 | 5 | 10 | 15 | 20 | 25 | 35 | 40 | 65 | 85 | 125 |

(a) Using the data provided in the table, plot a graph of mass (Y-axis) against time (X-axis).

(6mks)

(b) Name the type of growth curve. (1mk)

(c) Name the phylum of the organisms that show this type of growth pattern. (1mk)

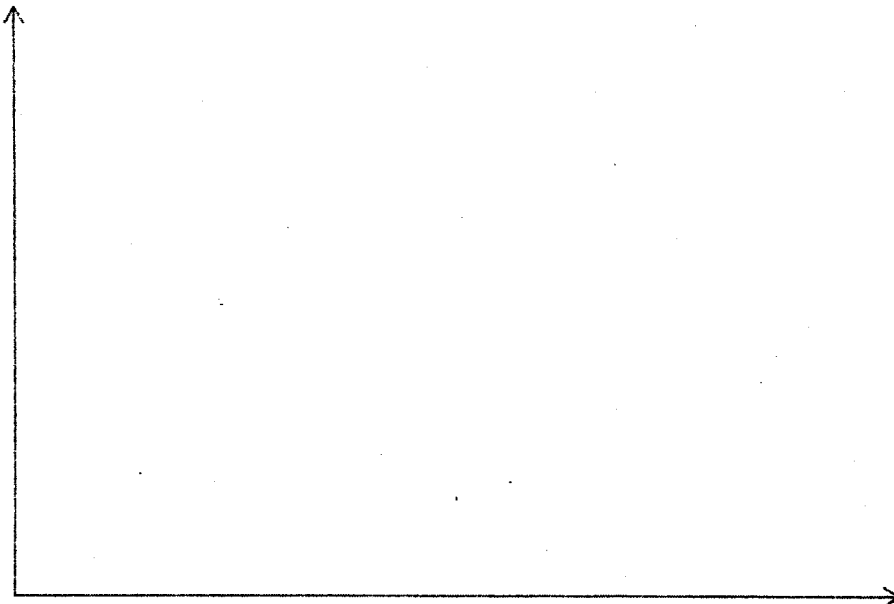
(d) Name and describe the effects of any two growth hormones in insects. (4mks)

(e) Give an example of insects which undergo:- (2mks)  
(i) Complete metamorphosis.

ii) Incomplete metamorphosis.

(f) State **one** advantage of complete metamorphosis over incomplete metamorphosis (1mk)

(g) Using the space provided **below** make a sketch and explain the expected growth curve for a mammal. (5mks)



7. (a) State the functions of the mammalian skin.  
(b) Describe how the human skin is adapted to its functions.
8. (a) State five functions of the alimentary canal.  
(b) How are the small intestines adapted to their function?

(4mks)

16mks)

(5 marks)

(15 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

