

END OF TERM 1 EXAMS

BIOLOGY

FORM FOUR

PAPER 2

TIME: 2 HOURS

NAME..... ADM NO:.....

SIGN..... INDEX NO:.....

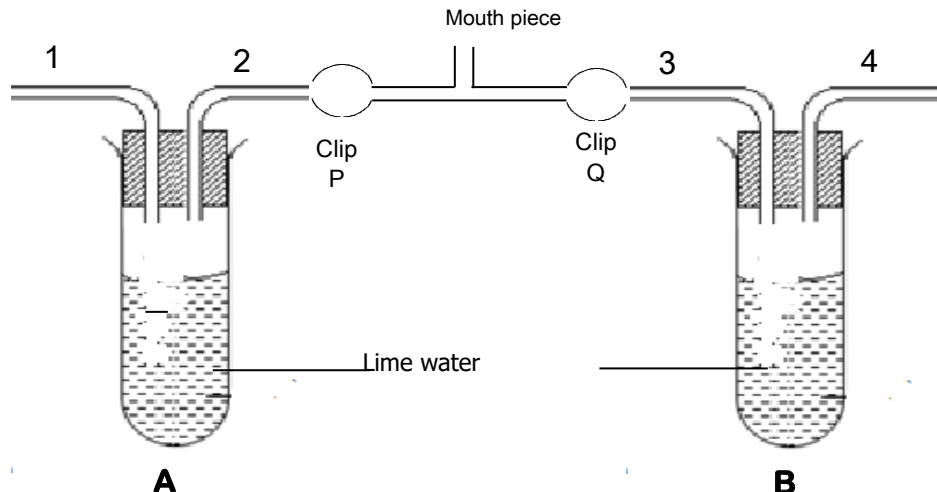
DATE;.....

INSTRUCTIONS TO CANDIDATES:

- Answer *ALL* the questions
- Answers should be written in the spaces provided

SECTION A: (40 MARKS)

1. The following set up was set for the form two class to study a certain concept.



FOR MARKING SCHEMES CALL/WHATSAPP 0705525657

a) Point out **one** mistake in the set-up and correct the mistake on diagram. (2mks)

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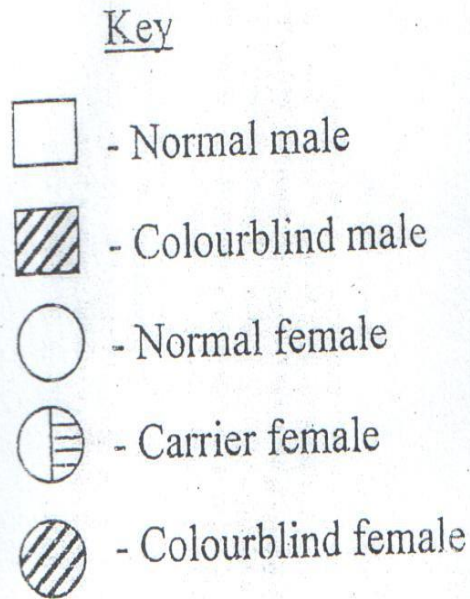
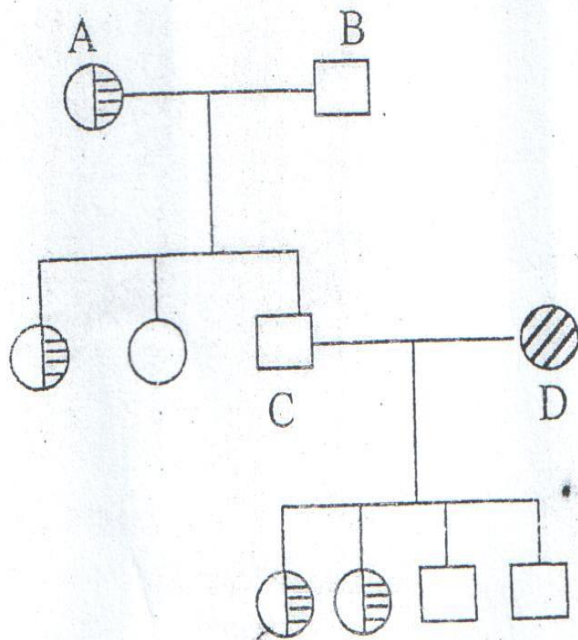
b) State the aim of the experiment. (1mk)

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c) Explain how the apparatus is used to achieve the aim of the experiment. (5mks)

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2. The following pedigree shows how the gene for colourblindness was passed in a family for three generations. The gene for colourblindness is sex linked.



a) Define the term sex linkage. (1mk)

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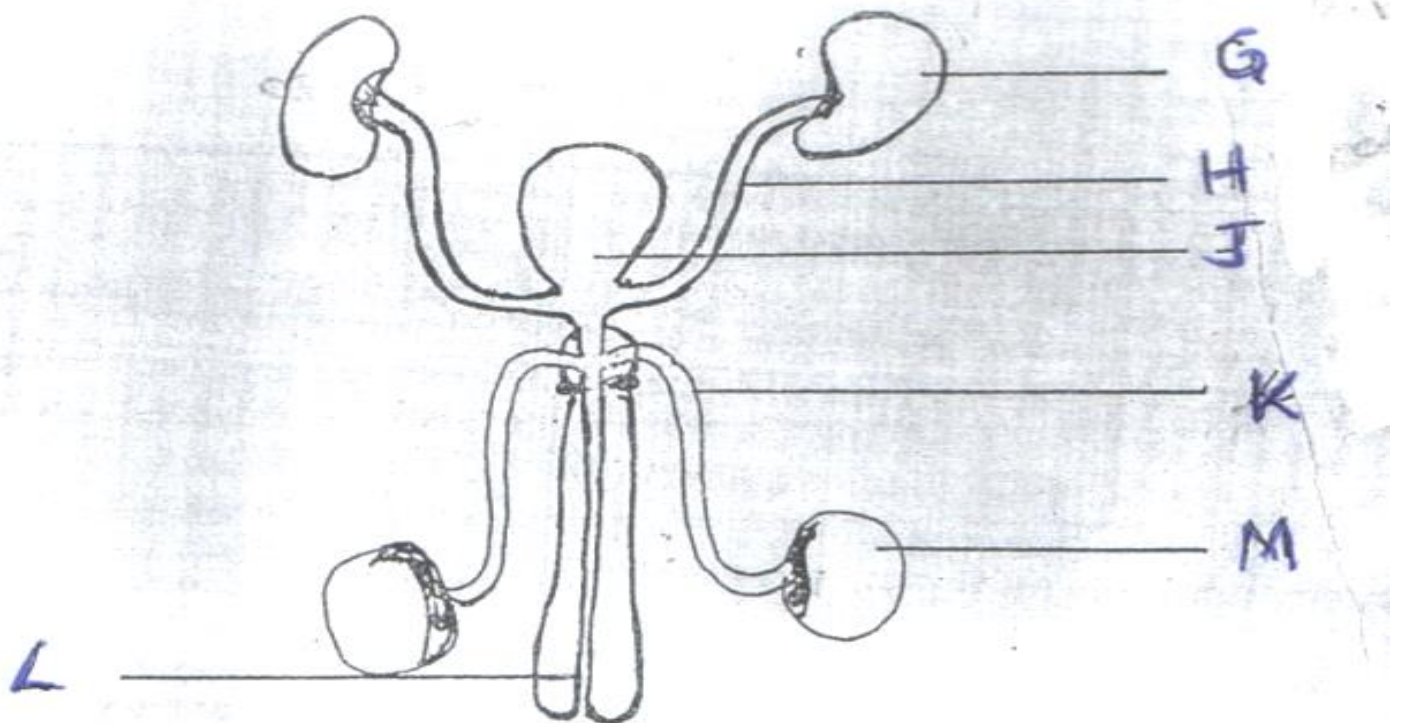
b) Write down the genotype of the parents A and B. (2mk)

A

B

c) Write down the phenotypic ratios of the 2nd generation from parents A and B. Show how you arrived at your answer. (5mks)

3. The diagram below represents the urinogenital system of a human being.



a) Name the parts labeled H and K. (2mks)

H

K

b) State the functions of the parts labeled G and L. (2mks)

G.....

L

c) (i) Give the letter of the structure in which meiosis occurs.(1mk)

(ii) State how the structure identified in (c) (i) is modified to enhance the survival of products of meiosis. (1mk)

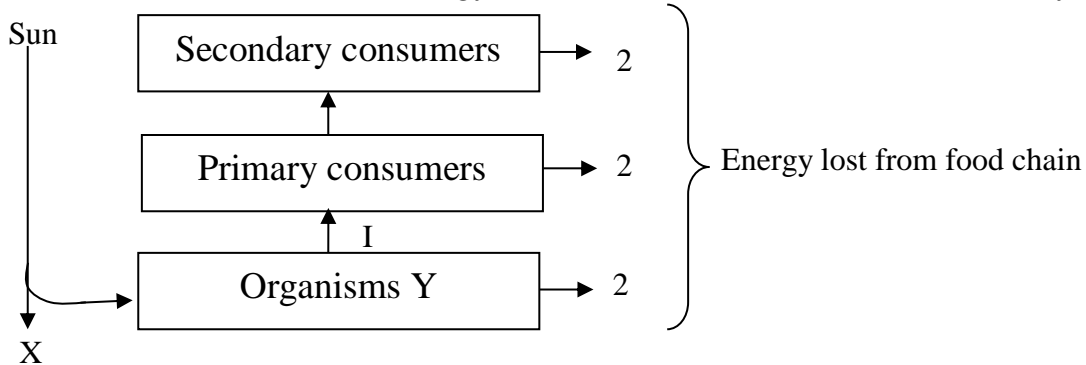
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d) (i) Name the hormone secreted by the part labeled M.....(1mk)

(ii) What is the function of the hormone named in (d) (i) above. (1mk)

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4. The scheme below shows how energy is transmitted from the sun into the ecosystem.



a) Name; (2mks)

i) Organisms Y

ii) Process I

b) Suggest two ways through which energy is lost from one trophic level to the next. (2mks)

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c) What is the importance of decomposers in an ecosystem? (1mk)

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d) Define the term Eutrophication. (1mk)

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e) Which trophic level has the least number of organisms? Explain why. (2mks)

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5. An animal had the following teeth; on the upper jaw, no incisors, no canines, six premolars and six molars. On the lower jaw, 6 incisors, no canines, six premolars and six molars.

a) Write down it's dental formula. (1mk)

b) (i) Suggest the mode of nutrition of this animal.....
(1mk)

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

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c) State **two** adaptations of the animal whose dental formula you have written in (a) above. (2mks)

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d) Name one dental disease in humans. (1mk)

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e) What is the role of teeth in digestion? (2mks)

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SECTION B: (40 MARKS)

This section consist of three questions 6, 7 and 8. Answer question 6 (COMPULSORY) and either question 7 or 8 in the spaces provided.

6. The relationship between oxygen concentration, potassium gain and sugar loss in isolated barley root was determined. The results obtained are given in the table below. (The sugar loss and potassium gain are expressed in arbitrary units).

Percentage oxygen concentration	0	5	10	15	20	100
Sugar loss	15	20	42	45	45	48
Potassium gain	5	55	70	73	75	70

a) Plot on the same axes graphs of sugar loss and potassium gain against oxygen concentrations. (8mks)

GRAPH PROVIDED BY TEACHER

b) (i) Suggest the process by which potassium is taken in by the roots. (1mk)

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(ii) Give reasons for your answer. (2mks)

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c) Account for the sugar loss and potassium gain at;

i) 0% oxygen concentration.

(2mks)

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ii) Between 5% and 20% oxygen concentration.

(2mks)

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d) Apart from oxygen concentration, suggest two other factors that affect the above process. (2mks)

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e) State **two** ways in which you can stop the above process from taking place.

(2mks)

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f) Name **one** part in human body where the process named in b(i) above take place.

(1mk)

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7. (a) What is meant by the term natural selection?

(2mks)

(b) Describe how natural selection brings about the adaptations of a species to its environment.

(8mks)

(c) Distinguish between convergent and divergent evolution.

(2mks)

(d) Discuss four evidences to show that evolution has taken place.

(8mks)

8. Explain **five** abiotic factors that affect living organisms in an ecosystem.

(20mks)

