

FORM 4 TERM 1 OPENER

BIOLOGY

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

CLASS..... SIGN.....

INDEX NO..... DATE.....

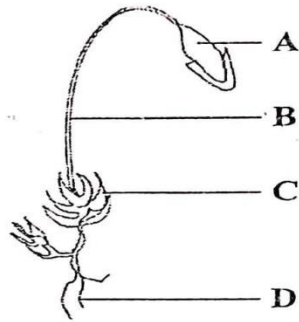
BIOLOGY PAPER 2

TIME:2HOURS

SECTION A

Answer all the questions in this section in the spaces provided.

1.(a)The diagram below represents a plant in the division Bryophyta.



(i)Name the parts labeled **B** and **D**. (2marks)

B.....

D.....

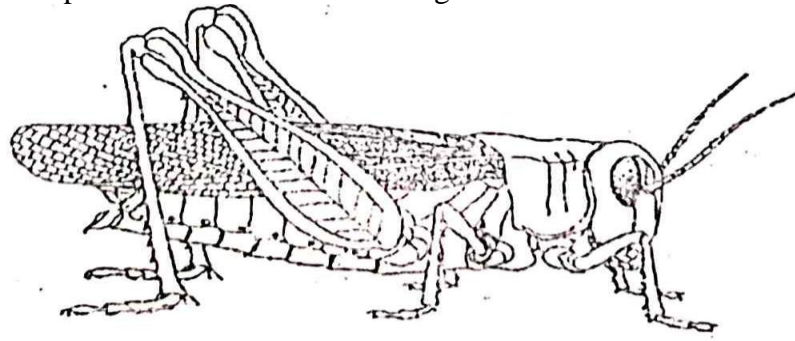
(ii)State one function for each of the parts labeled **A** and **C**. (2marks)

A.....

C.....

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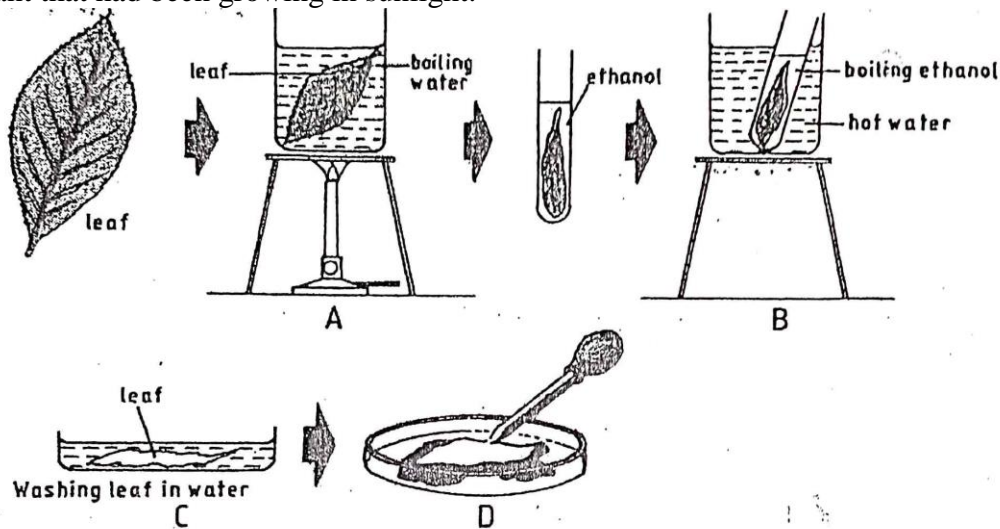
(b)The diagram below represents a member of the kingdom Animalia.



(i)Name the phylum to which the organism belongs. (1mark)

(ii)Using observable features in the diagram, give **three** reasons for the answer in b(i). (3marks)

2. The set up below illustrates a procedure that was carried out in the laboratory with a leaf plucked from a green plant that had been growing in sunlight.



(i)What was the purpose of the above procedure. (1mark)

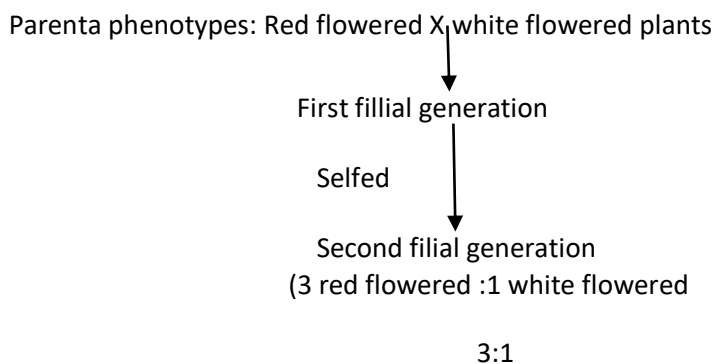
(ii)Give reasons for carrying out steps A,B and C in this procedure. (3marks)

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(iii) Name the reagent that was used at the step labeled D. (1 mark)

(iv) State the expected result on the leaf after adding the reagent named in (iii) above. (1 mark)

3. The chart below represents the result of successive crosses, starting with red flowered plants and white flowered plants and in which both plants are pure breeding.



(a) What were parental genotypes? Use letter R to represent the gene for red colour and r for white colour. (2 marks)

(b)(i) What was the colour of the flowers in the first filial generation? (1 mark)

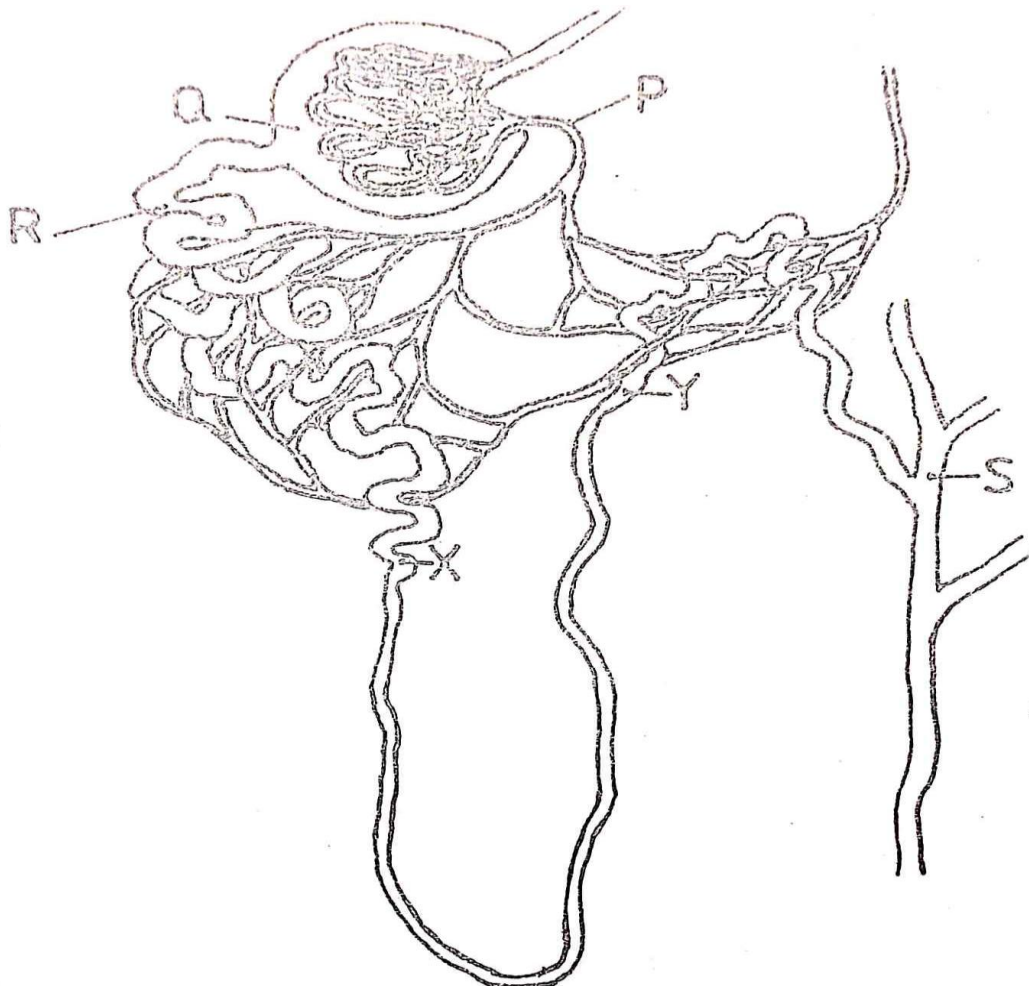
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(ii) Give a reason for your answer in (b)(i) above.

(2marks)

(c) 480 red flowered plants were obtained in the second filial generation, how many F_2 plants were white coloured plants? Show your working. (3marks)

4. The diagram below represents a mammalian nephron.



(a) Name the:

(i) Structure labeled P.

(1mark)

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(ii) Portion of the nephron between point X and Y. (1mark)

(b) Name the process that takes place at point Q. (1mark)

(c) Name one substance present at point R but absent at point S in a healthy human. (1mark)

(d) The appearance of the substance you have named in (c) above is a symptom of a certain disease caused by a hormone deficiency.

Name the :

(i) Disease (1mark)

(ii) Hormone (1mark)

(e) State the structure modifications of nephrons found in desert mammals. (2marks)

(f) State two advantages terrestrial animals have in excreting urea as their main nitrogenous waste product. (2marks)

5. In an experiment on respiration, a mouse was observed to have inhaled 200cm^3 of oxygen and exhaled 199.75cm^3 of carbon (IV) Oxide in ten minutes.

(a) Calculate the respiratory quotient for the activity in the experiment. (2marks)

(b) Identify the possible food substance consumed by the mouse.

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(c) State the fate of the excess food named in (b) above in the human body. (2marks)

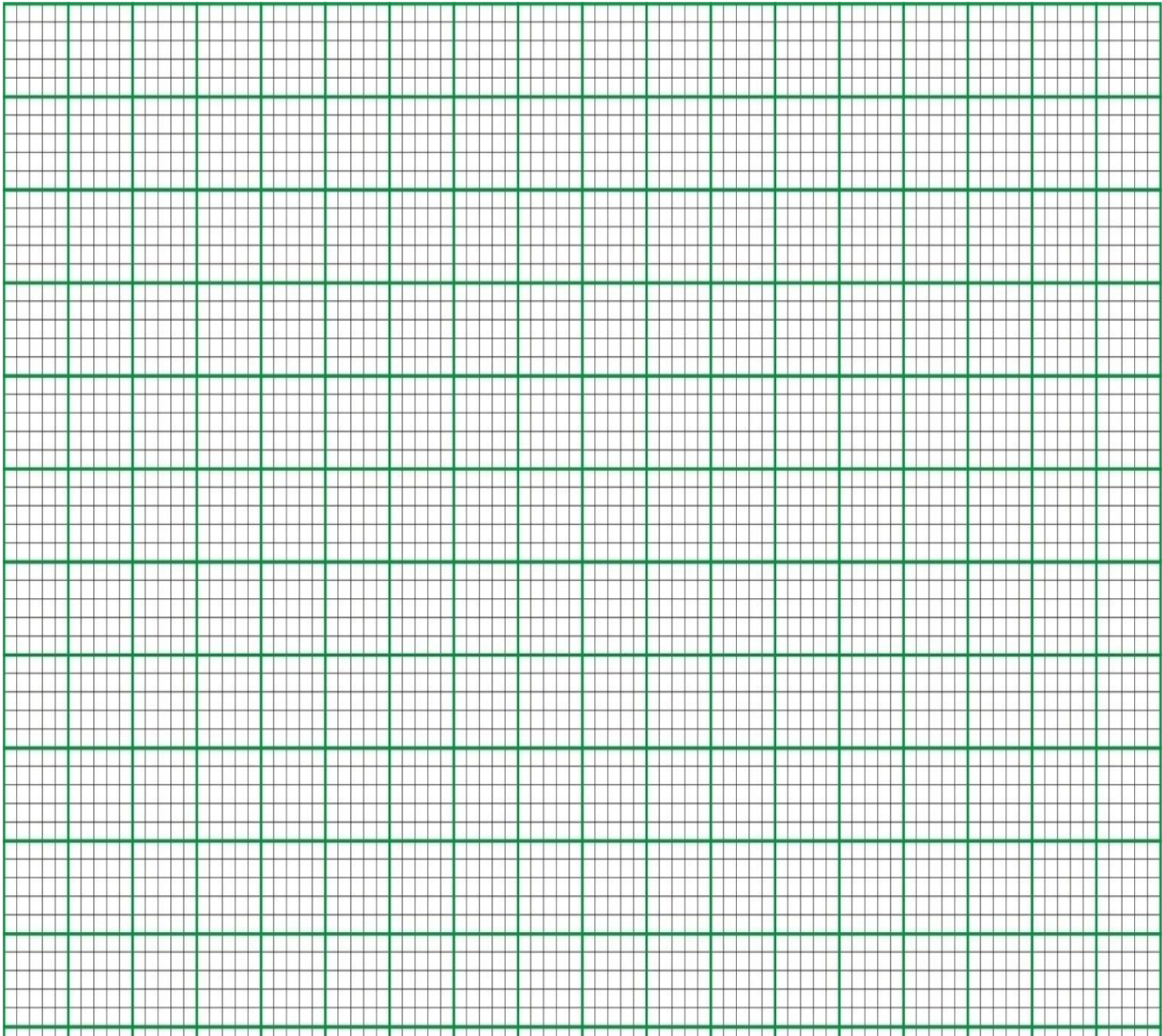
(d) Name the three end products of anaerobic respiration in plants.

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

6. A scientist carried out an investigation to find out the population growth of mice under laboratory conditions. Twenty young mice were placed in a cage. The results obtained from the investigation were as shown in the table below.

Time in months	0	2	4	6	7	10	12	16	18
Number of mice	20	20	65	115	310	455	450	145	160

(a) On the grid provided, draw a graph of the number of mice against time. (6marks)



(b) Account for the changes in mice population between.

(i) 0 to 2 months.

(2marks)

(ii) 2 to 6 months

(2marks)

(iii) 6 to 10 months

(2marks)

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(iv) 10 to 12 months (2 marks)

(c)(i) Between which two months was the population change greatest? (1 mark)

(ii) Calculate the rate of population change over the period in (c) (i) above. (2 marks)

(d) What change in population was continued to the 19th month?

(e) To obtain the observed results state two variables that were kept constant during the investigation.

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