

Centre No.						Paper Reference					Surname	Initial(s)	
Candidate No.						4	4	3	7	/	1	F	Signature

Paper Reference(s)

4437/1F

Examiner's use only

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London Examinations IGCSE

Science (Double Award)

Team Leader's use only

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Paper 1F

Foundation Tier

Specimen Paper

Time: 1 hour 15 minutes

Materials required for examination

Nil

Items included with question papers

Nil

Question Number	Leave Blank
1	
2	
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Instructions to Candidates

In the boxes above, write your centre number and candidate number, your surname, initial(s) and signature.
The paper reference is shown at the top of this page. Check that you have the correct question paper.
Answer **ALL** the questions in the spaces provided in this question paper.
Show all the steps in any calculations and state the units.

Information for Candidates

There are 24 pages in this question paper. All blank pages are indicated.
The total mark for this paper is 75. The marks for the various parts of questions are shown in round brackets: e.g. (2).

Advice to Candidates

You are reminded of the importance of clear English and careful presentation in your answers.

Printer's Log. No.

Specimen

Turn over

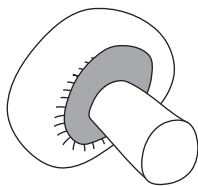
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1. For each question, choose the best answer, **A**, **B**, **C** or **D** and write it in the box.

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blank*

(a) The drawing shows a living organism.

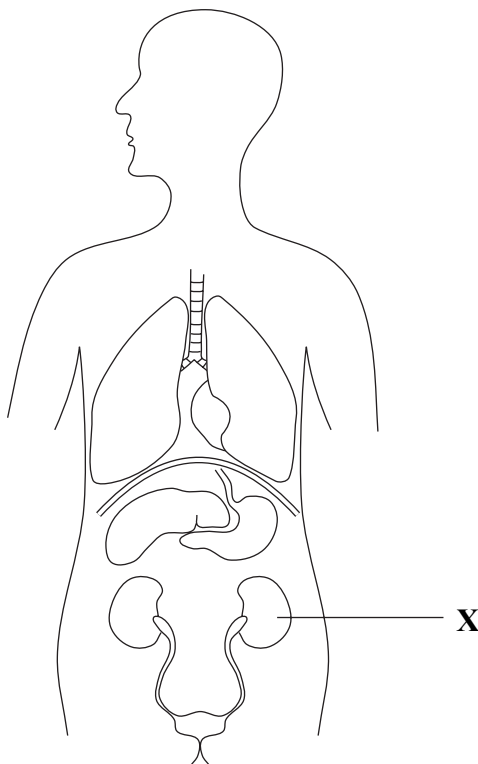


This living organism is

- A** an animal
- B** a bacterium
- C** a fungus
- D** a virus

(1)

(b) The diagram shows organs in the human body.



X is the

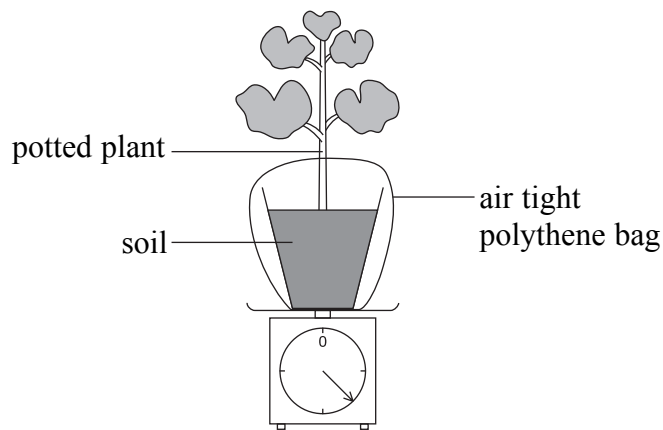
- A** large intestine
- B** kidney
- C** small intestine
- D** stomach

(1)

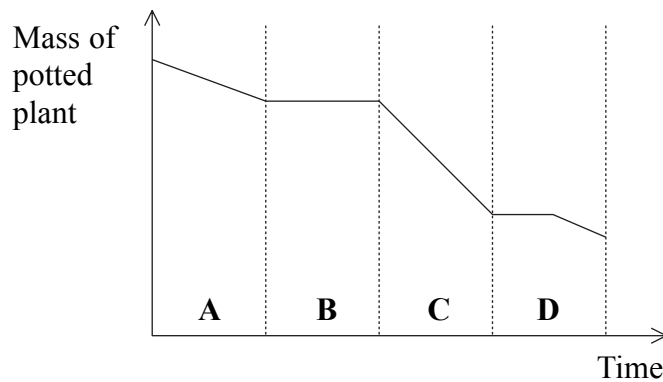
Turn over

- (c) The diagram shows a potted plant being weighed. Its mass was recorded every 10 minutes.

Leave blank



The graph shows the changes in mass over a number of hours.



During which period of time was transpiration fastest?

(1)

- (d) Plants will grow better in a glasshouse if there is an increase in

- A temperature only
- B carbon dioxide only
- C temperature and carbon dioxide
- D neither temperature nor carbon dioxide

(1)

Leave blank

- (e) Which row of the table shows the sex chromosomes found in an egg and in a sperm that produce a boy?

	Egg	Sperm
A	X	X
B	X	Y
C	Y	Y
D	Y	X

(1)

- (f) Acid rain may be formed if air is polluted by

- A** carbon monoxide
- B** sulphur dioxide
- C** oxygen
- D** water vapour

(1)

- (g) Which row correctly shows the flow of energy along a food chain?

- A** sun ← grass ← cow ← human
- B** sun ← grass → cow → human
- C** sun → grass → cow → human
- D** sun → grass ← cow ← human

(1)

Q1

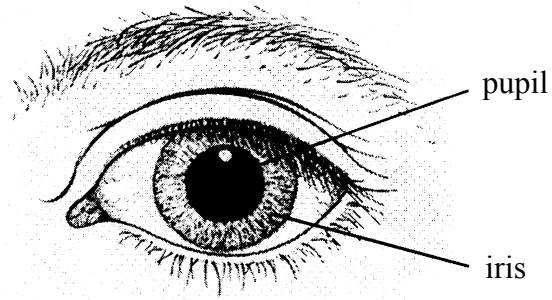
(Total 7 marks)

Turn over

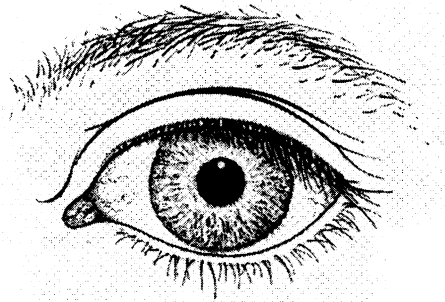
2. (a) The diagrams below show what happens when a bright light is shone into a human eye.

Leave blank

Before light is shone into the eye



Bright light shining into the eye



(i) How has the pupil changed in bright light?

..... (1)

(ii) Explain how the iris helps this change take place.

.....
.....
..... (2)

Leave blank

- (b) It used to be fashionable for women to put drops into their eyes to prevent their pupils becoming smaller in bright light.

Suggest why this could harm the eyes in bright light.

.....
.....

(1)

- (c) Four hormones are named in the box.

insulin	testosterone
oestrogen	progesterone

Match the correct hormone with each statement below.

	controls sperm production
	lowers blood glucose levels
	repairs the uterus lining after menstruation

(3)

Q2

(Total 7 marks)

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Turn over

3. Diagram 1 shows a section through part of a leaf.

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blank*

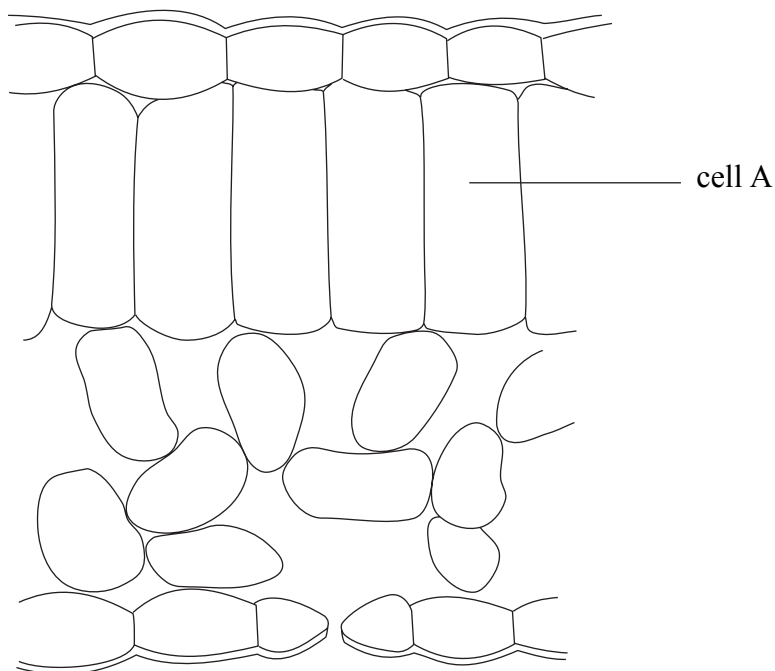


Diagram 1

(a) On the diagram, draw an arrow to show where gases enter the leaf.

(1)

(b) What is the main function of cell A?

.....

(1)

(c) Diagram 2 shows the structure of cell A.

*Leave
blank*

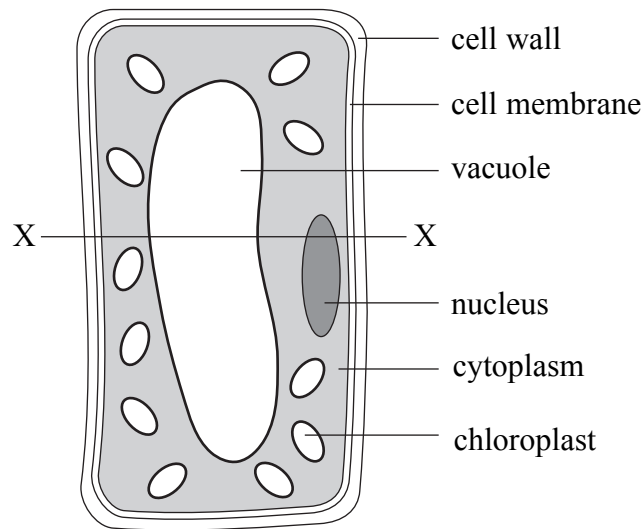


Diagram 2

Imagine cell A is cut across the line X—X. The appearance of this cross section is shown in diagram 3 below.

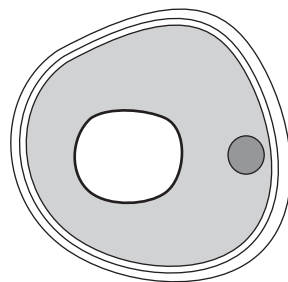


Diagram 3 Cross section along line X—X

Use words from the list to label diagram 3.

- cell wall**
- cytoplasm**
- nucleus**
- vacuole**

(4)

Q3

(Total 6 marks)

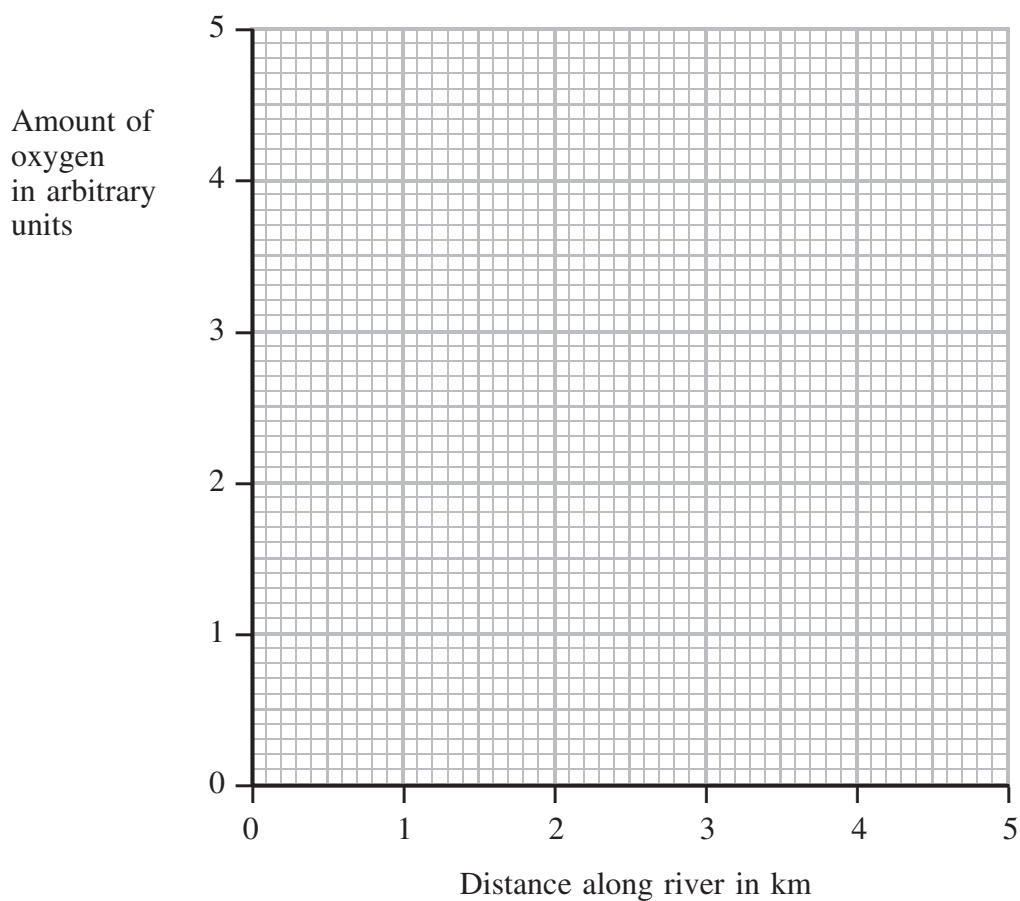
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4. The table below shows the amount of oxygen in the water at different distances along a river.

*Leave
blank*

Distance along river in km	Amount of oxygen in arbitrary units
0	5
1	5
2	1
3	2
4	3
5	5

(a) Plot the data in the table on the grid below.



(2)

*Leave
blank*

(b) Some sewage entered the water at a distance of 1 km along the river.

(i) How did the amount of oxygen change between 1 km and 2 km along the river?

.....

.....

(1)

(ii) Explain why the amount of oxygen in the water changed.

.....

.....

.....

(2)

Q4

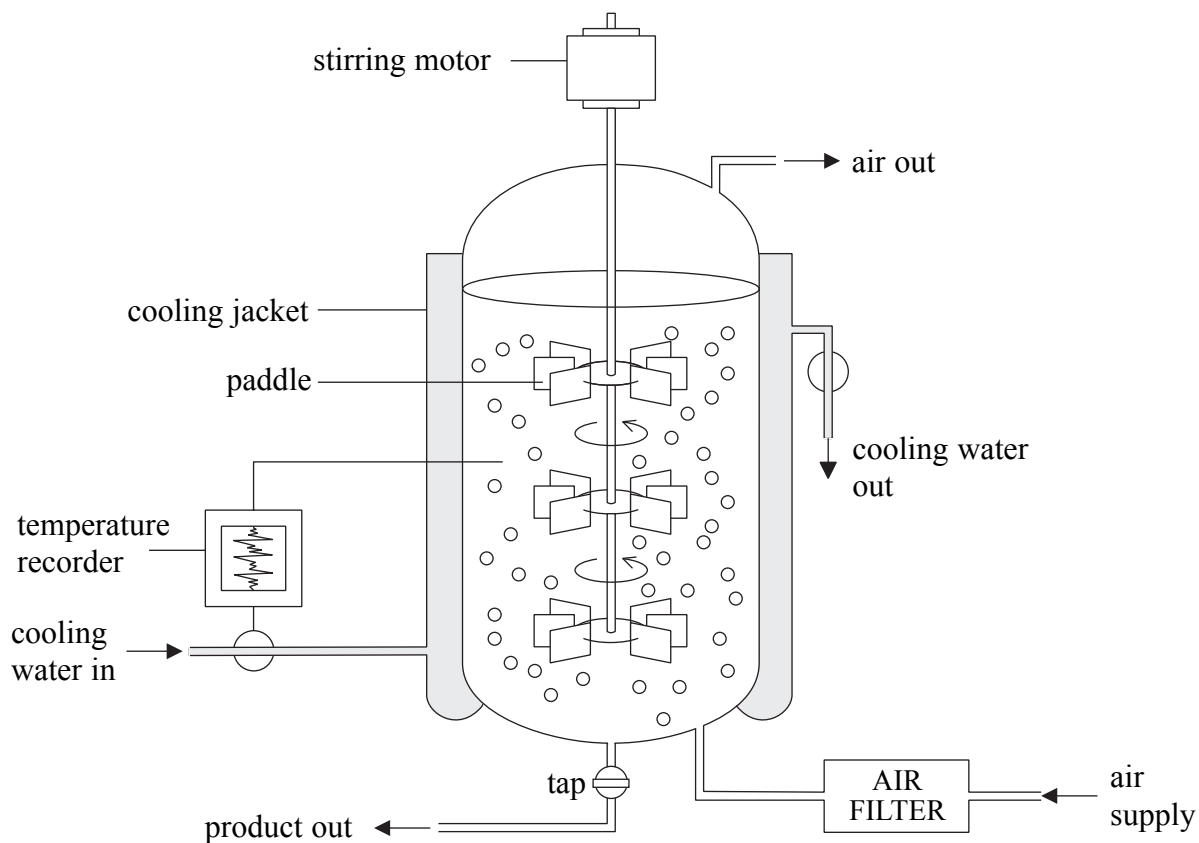
(Total 5 marks)

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Turn over

5. The diagram below shows a container used to grow microorganisms.

Leave blank



(a) What is the name of the container?

..... (1)

(b) Name a type of microorganism that can be grown in the container.

..... (1)

(c) Suggest the name of a gas in air that would help the microorganisms to grow.

..... (1)

(d) Suggest why the air needs to be filtered.

.....
 (1)

Q5

(Total 4 marks)

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6. When athletes run races they get energy from aerobic respiration and from anaerobic respiration. The table below shows the percentage of energy from aerobic and anaerobic respiration in races of different length.

Leave blank

Length of race	Percentage of energy	
	Aerobic respiration	Anaerobic respiration
100 m	5	95
1 500 m	55	45
10 000 m	90	10
Marathon (42 186 m)	98	2

- (a) (i) What percentage of energy is provided by anaerobic respiration in a 10 000 m race?

Answer%
(1)

- (ii) In how many of the races does aerobic respiration provide a greater percentage of energy?

.....
(1)

- (b) Use words from the box to complete the sentences below.

carbon dioxide	energy	glucose
lactic acid	oxygen	water

Aerobic respiration uses and

..... to produce a lot of energy.

The two waste products are

and

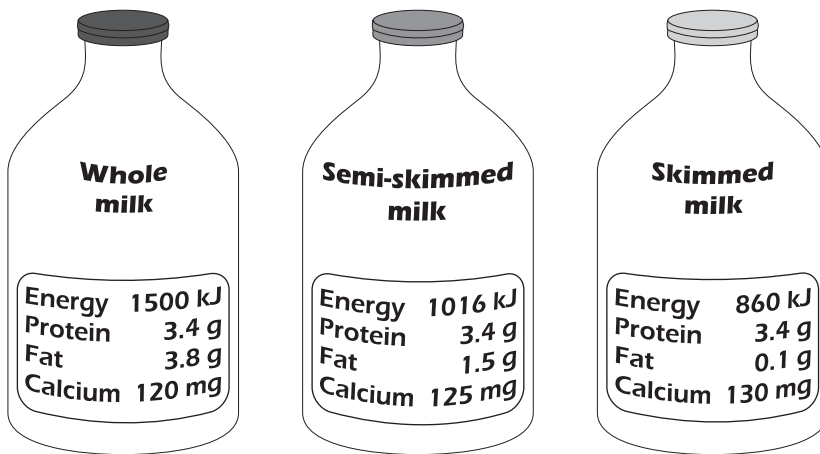
(4) **Q6**

(Total 6 marks)

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7. The diagram below gives information about three different types of milk.

Leave blank



(a) Which type of milk provides the most energy?

..... (1)

(b) Which type of milk is best for growth of the skeleton?

..... (1)

(c) Suggest why skimmed milk is often recommended for people with heart disease.

.....
.....
.....
..... (2)

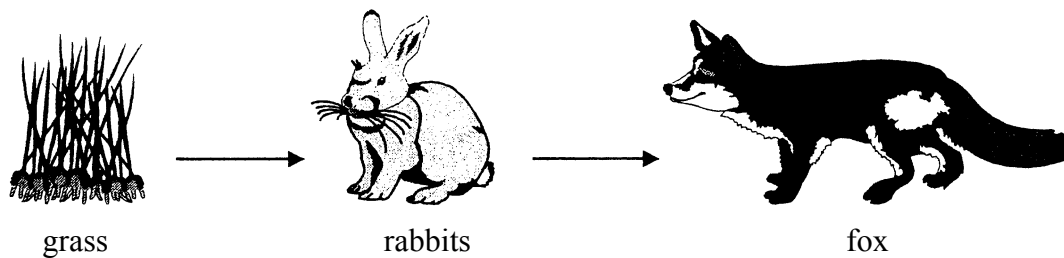
(Total 4 marks)

Q7

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8. The diagram shows a food chain in a field.

Leave blank



(a) (i) Name the primary consumer in this food chain.

..... (1)

(ii) In the space below, draw and label a pyramid of biomass for this food chain.

(2)

(b) There are plans to build a factory on the field.

(i) What will happen to the number of rabbits and foxes if the factory is built?

.....
..... (1)

(ii) Give reasons for your answer.

.....
.....
..... (2)

Q8

(Total 6 marks)

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Turn over

9. (a) Lipase is an enzyme that helps the digestion of lipids (fats and oils).

(i) What is meant by the term **digestion**?

.....
.....
.....

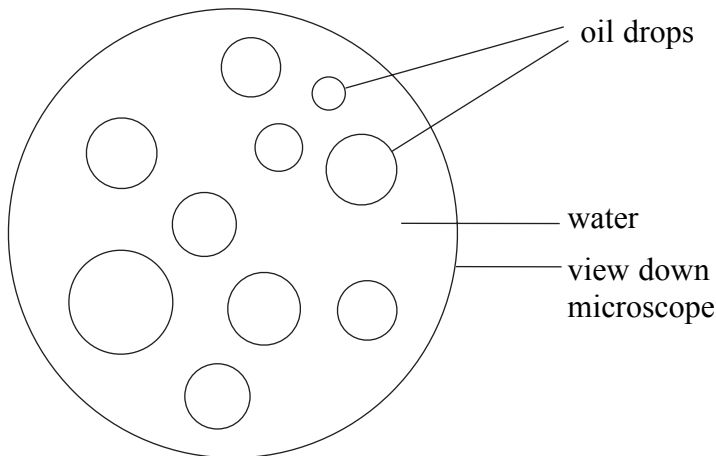
(2)

(ii) Name **one** substance produced when lipase digests fat.

.....

(1)

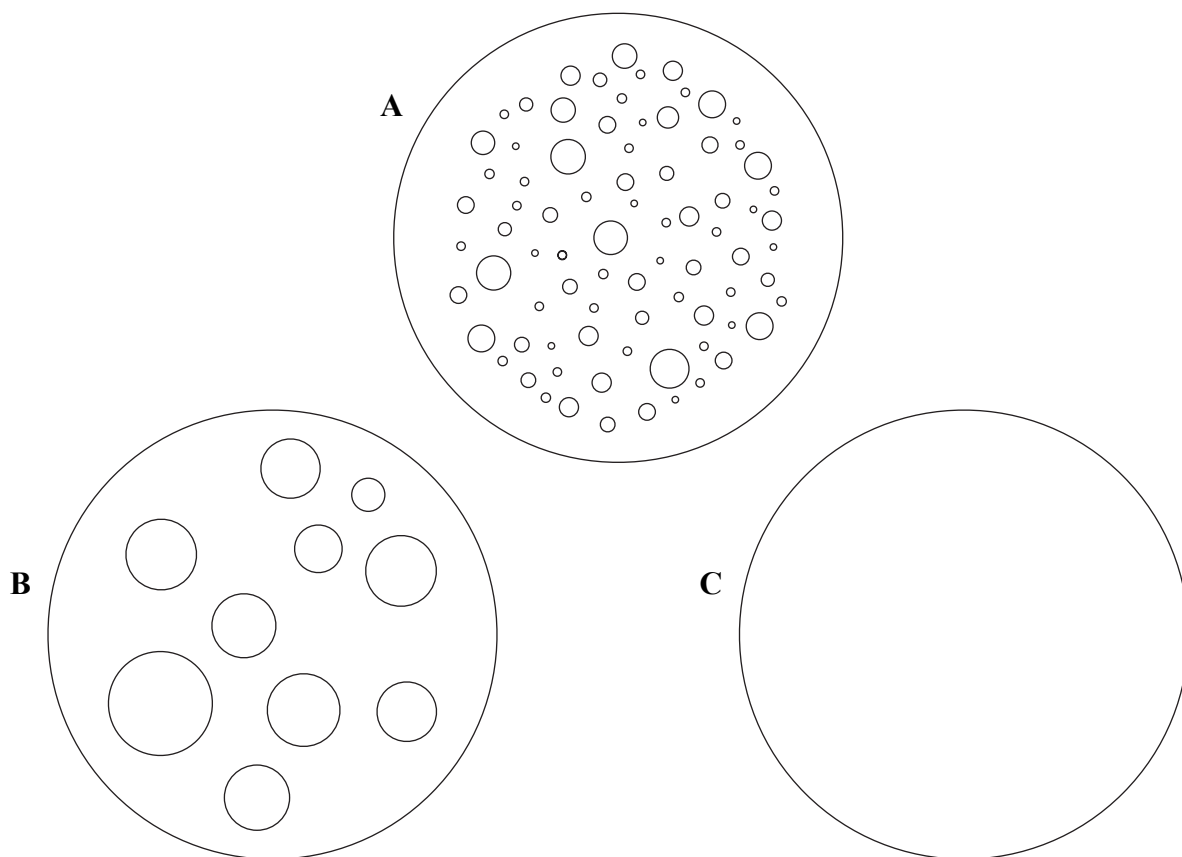
(b) The diagram below shows a mixture of cooking oil and water as seen under a microscope.



Four different substances (lipase, boiled lipase, amylase and bile) were added to separate samples of the mixture of oil and water. Each sample was left for 20 minutes.

Leave blank

The diagrams **A**, **B** and **C** below show the possible appearance for each sample after twenty minutes.



Write the correct appearance (**A**, **B** or **C**) in each box in the table below. Each letter may be used once, more than once or not at all. The first one has been done for you.

Treatment	Appearance
Oil and water mixture plus lipase	C
Oil and water mixture plus boiled lipase	
Oil and water mixture plus bile	

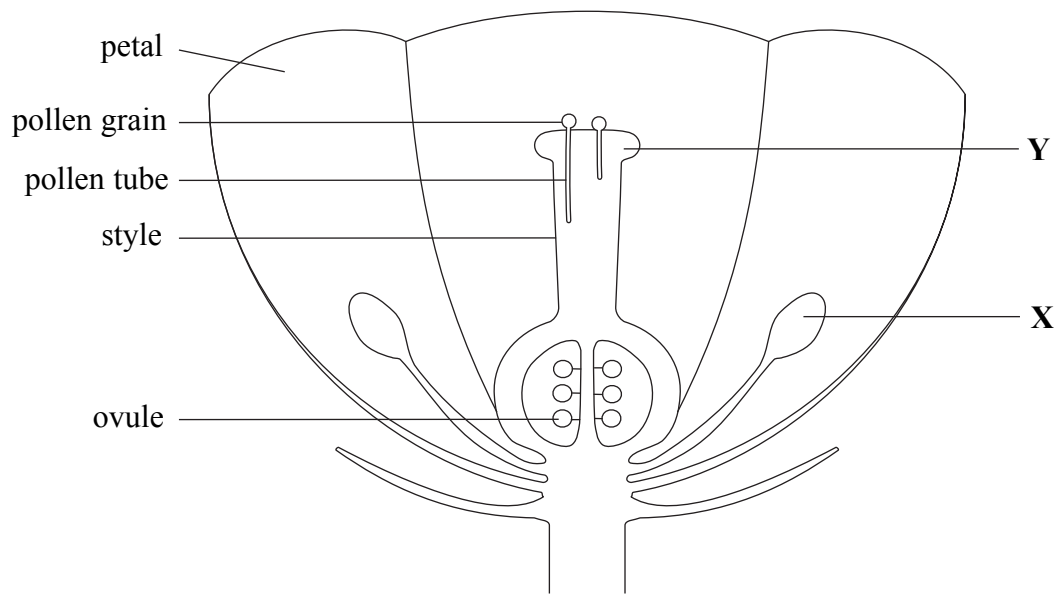
(2)

Q9

(Total 5 marks)

10. The diagram below shows a flower cut in half. Reproduction occurs when pollen grains from part X land on part Y. Tubes from the pollen grains grow through the style.

Leave blank



- (a) (i) Name part X.

..... (1)

- (ii) Name part Y.

..... (1)

- (b) Suggest how pollen is carried from part X to part Y.

.....
 (1)

- (c) On the diagram continue the drawing of one of the pollen tubes to show where it would go.

(1)

Q10

(Total 4 marks)

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11. The table below lists changes which take place in the human body.

*Leave
blank*

Complete the table to show the organ in which each change takes place.

The first one has been done for you.

Change	Name of organ
Amino acids to urea	liver
Diploid cell to haploid cell	
Glucose to glycogen	
Haemoglobin to oxyhaemoglobin	
High level of urea in blood to low level of urea in blood	
Thick lining to a thin lining, once a month	

Q11

(Total 5 marks)

Turn over

12. The following advice is taken from the side of a cigarette packet.

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blank*

STOPPING SMOKING REDUCES
THE RISK OF SERIOUS DISEASES
Health Departments' Chief Medical Officers

Describe how smoking can affect the health of your lungs.

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Q12

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(Total 5 marks)

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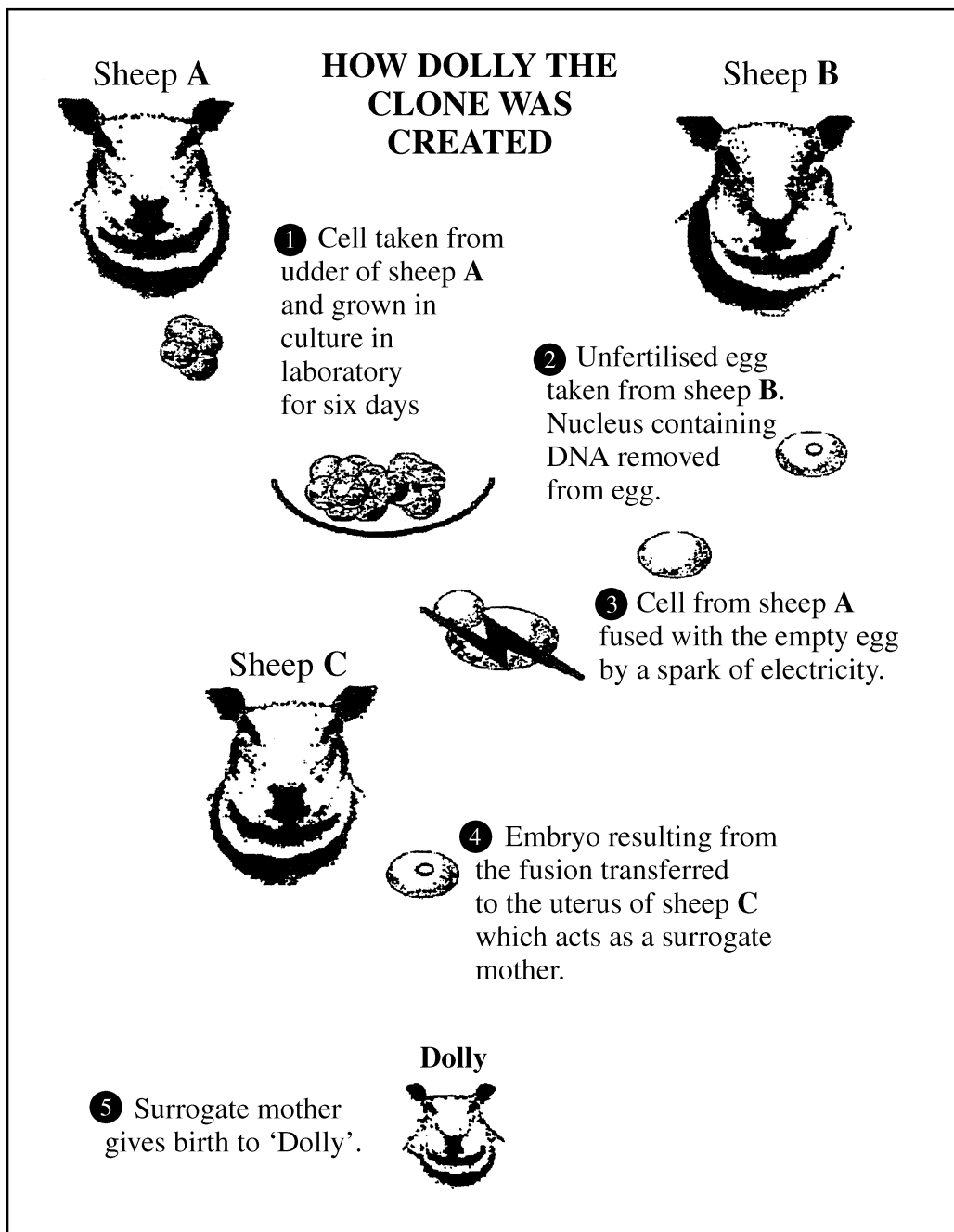
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TURN OVER FOR THE NEXT QUESTION

Turn over

13. The diagram shows how scientists produced Dolly the sheep.

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blank



(a) (i) Dolly was produced with the help of an unfertilised egg.
Where did the scientists get the DNA from to put into this egg?

.....
(1)

(ii) How does the nucleus in a cell from the embryo differ from the nucleus removed from the egg?

.....
.....
(1)

(iii) Dolly is genetically identical to another sheep in the diagram. Which one?

.....
(1)

(b) Give **two** ways in which this method is different from the normal method of sheep reproduction.

1.
.....
2.
.....
(2)

(c) Suggest **two** advantages of producing animal clones.

1.
2.
(2)

Q13

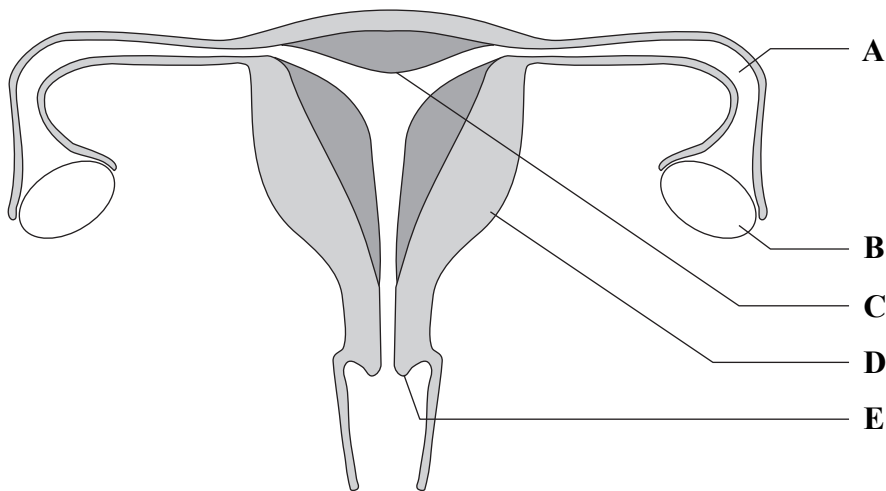
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(Total 7 marks)

Turn over

14. The diagram below shows the female reproductive system.

Leave blank



The table below lists some events that occur in the female reproductive system.

Complete the table using letters from the diagram to show the part where each event occurs. Write **one** letter only in each box. A letter may be used once, more than once, or not at all.

Event	Letter
Eggs produced	
Fertilisation occurs	
Repaired by oestrogen	
Progesterone secreted	

Q14

(Total 4 marks)

TOTAL FOR PAPER: 75 MARKS

END