UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

2899871394

BIOLOGY **9700/21**

Paper 2 Structured Questions AS **May/June 2010**

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided at the top of the page.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
1	
2	
3	
4	
5	
6	
Total	

This document consists of **14** printed pages and **2** blank pages.

DC (SM/DJ) 25205/2
© UCLES 2010

Answer **all** the questions.

For Examiner's Use

1 **(a)** Fig. 1.1 shows the breakdown of a molecule of sucrose.

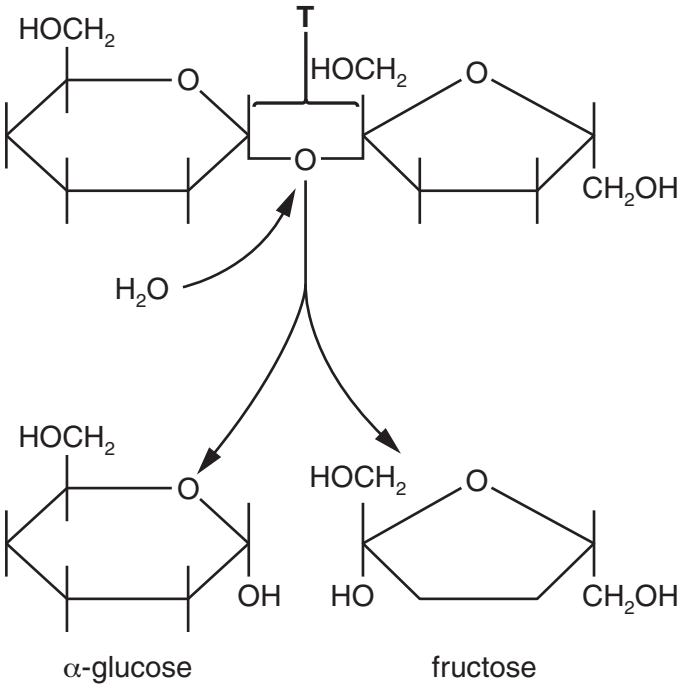


Fig. 1.1

(i) Name the bond indicated by **T**.

.....[1]

(ii) State the name given to this type of reaction in which water is involved.

.....[1]

(iii) State two roles of water **within plant cells** other than taking part in breakdown reactions.

1. .....

2. .....[2]

(b) Enzymes are globular proteins.

State what is meant by the term *globular*.

.....

.....

.....

.....[2]

(c) The reaction shown in Fig. 1.1 is catalysed by the enzyme sucrase. Fig. 1.2 shows an enzyme-catalysed reaction.

For Examiner's Use

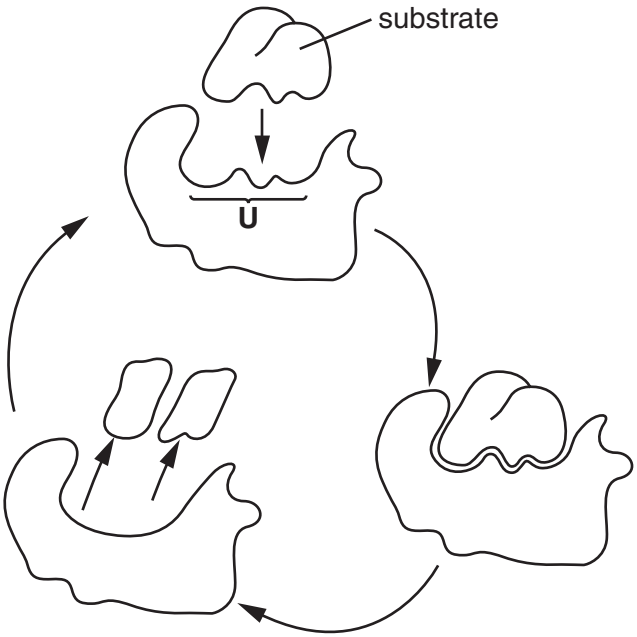


Fig. 1.2

(i) Name the part of the enzyme labelled **U**.

.....[1]

(ii) With reference to Fig. 1.2, explain the mode of action of enzymes.

.....

.....

.....

.....

.....

.....

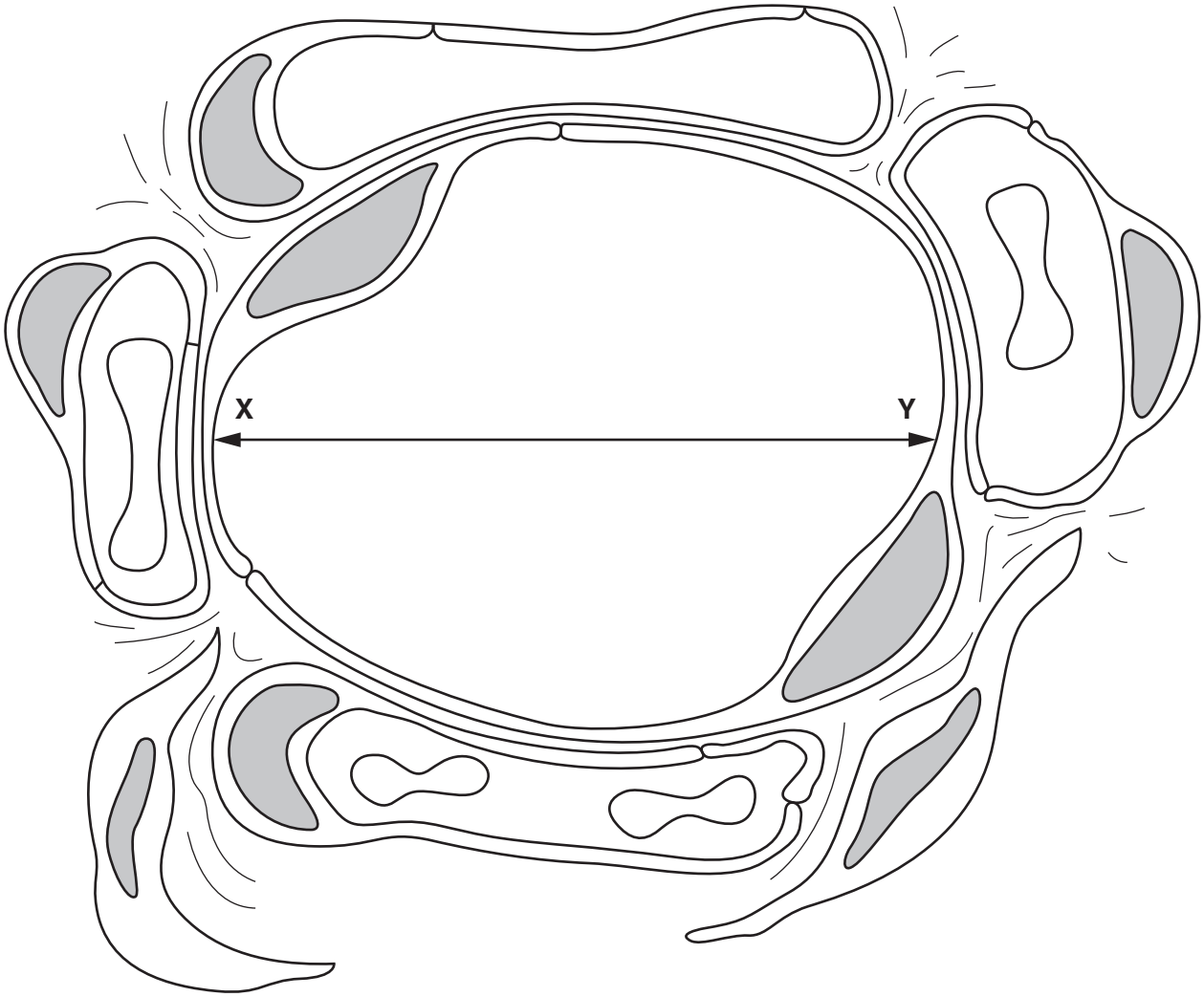
.....

.....[4]

[Total: 11]

2 Fig. 2.1 is a section of an alveolus and surrounding tissue.

For Examiner's Use



magnification × 3500

Fig. 2.1

(a) Calculate the actual diameter of the alveolus along the line **X**–**Y**.

Show your working and give your answer to the nearest micrometre.

Answer = ... μm [2]

© UCLES 2010

(b) (i) Describe the role of elastic fibres in the wall of the alveolus.

For Examiner's Use

.....

.....

.....

.....[2]

(ii) With reference to Fig. 2.1, explain how alveoli are adapted for gas exchange.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(c) Chronic obstructive pulmonary disease (COPD) is a progressive disease that develops in many smokers. COPD refers to two conditions:

- chronic bronchitis
- emphysema.

(i) State two ways in which the lung tissue of someone with emphysema differs from the lung tissue of someone with healthy lungs.

1. .....

2. .....[2]

(ii) State two symptoms of emphysema.

1. .....

.....

2. .....

.....[2]

[Total: 12]

BLANK PAGE

3 **(a)** Fig. 3.1 shows a cross-section of the heart at the level of the valves.

For Examiner's Use

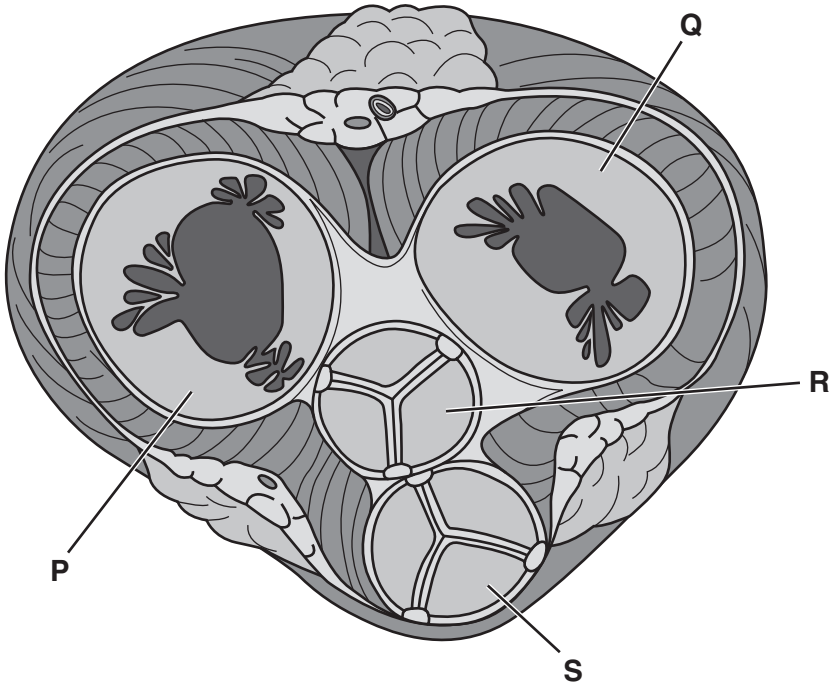


Fig. 3.1

(i) Complete the following flow chart to show the pathway of blood through the heart.

vena cava → right atrium → valve **P** → [ ] → valve **S**

valve **S** → [ ] ← lungs ← pulmonary artery

left atrium ← [ ]

left atrium → valve **Q** → left ventricle → valve **R** → aorta

[2]

(ii) Explain how the valves **P** and **Q** ensure one-way flow of blood through the heart.

.....

.....

.....

.....[2]

(b) The cardiac cycle describes the events that occur during one heart beat.

For Examiner's Use

Fig. 3.2 shows the changes in blood pressure that occur within the left atrium, left ventricle and aorta during one heart beat.

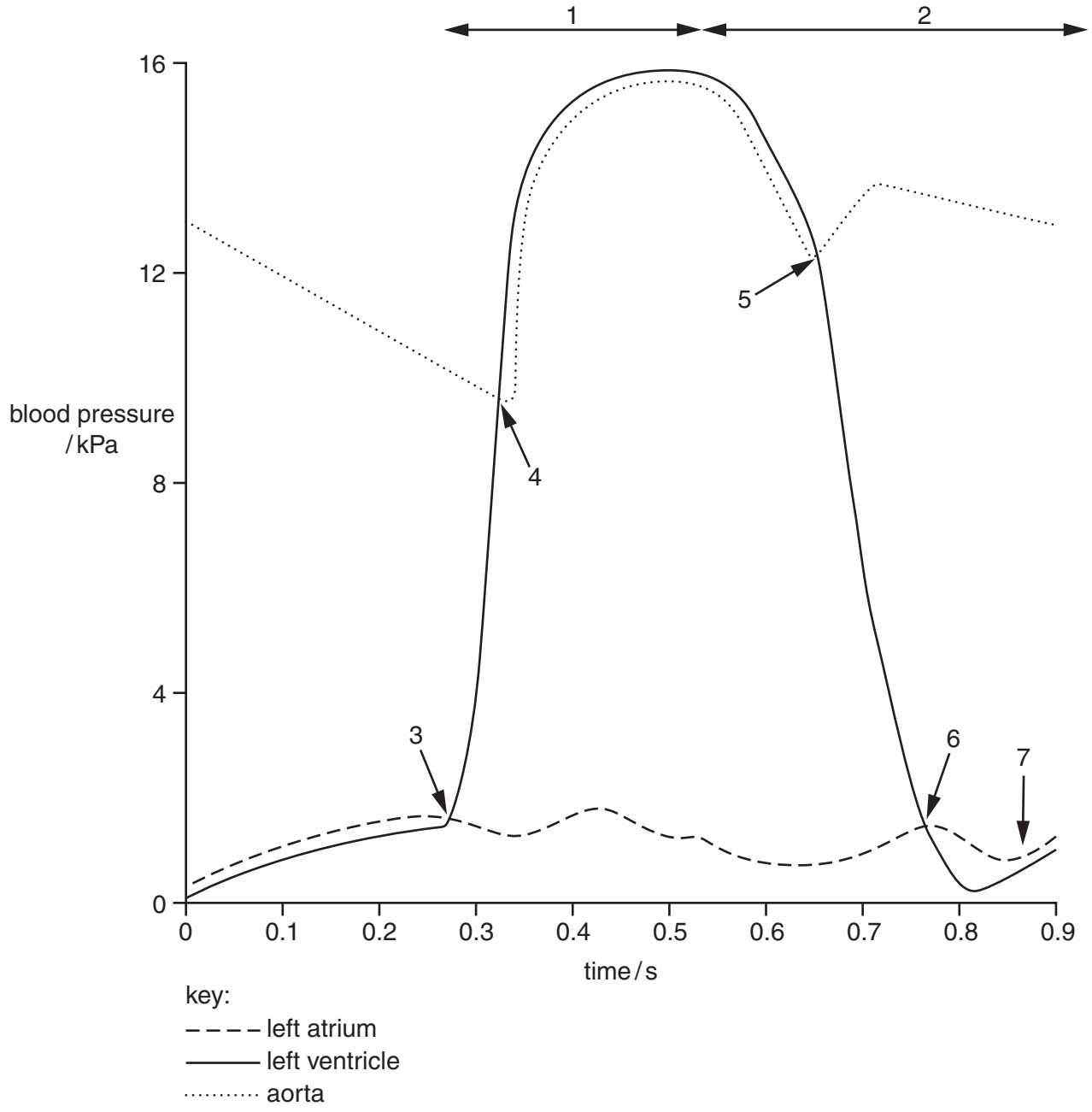


Fig. 3.2

In the table below, match up each event during the cardiac cycle with an appropriate number **1** to **7** on Fig. 3.2.

For Examiner's Use

You should put only one number in each box. You may use each number once, more than once or not at all.

The first answer has been completed for you.

event during the cardiac cycle	number
atrioventricular (bicuspid) valve opens	**6**
ventricular systole	
semilunar (aortic) valve closes	
left ventricle and left atrium both relaxing	
semilunar (aortic) valve opens	

[4]

(c) Explain the roles of the sinoatrial node (SAN), atrioventricular node (AVN) and the Purkyne tissue during one heart beat.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[5]

[Total: 13]

For Examiner's Use

4 Malaria and tuberculosis (TB) are two of the most important infectious diseases.

(a) Define the term *infectious disease*.

.....

.....[1]

(b) Describe how malaria is passed from an infected person to an uninfected person.

.....

.....

.....

.....

.....[2]

Fig. 4.1 shows the worldwide distribution of malaria.

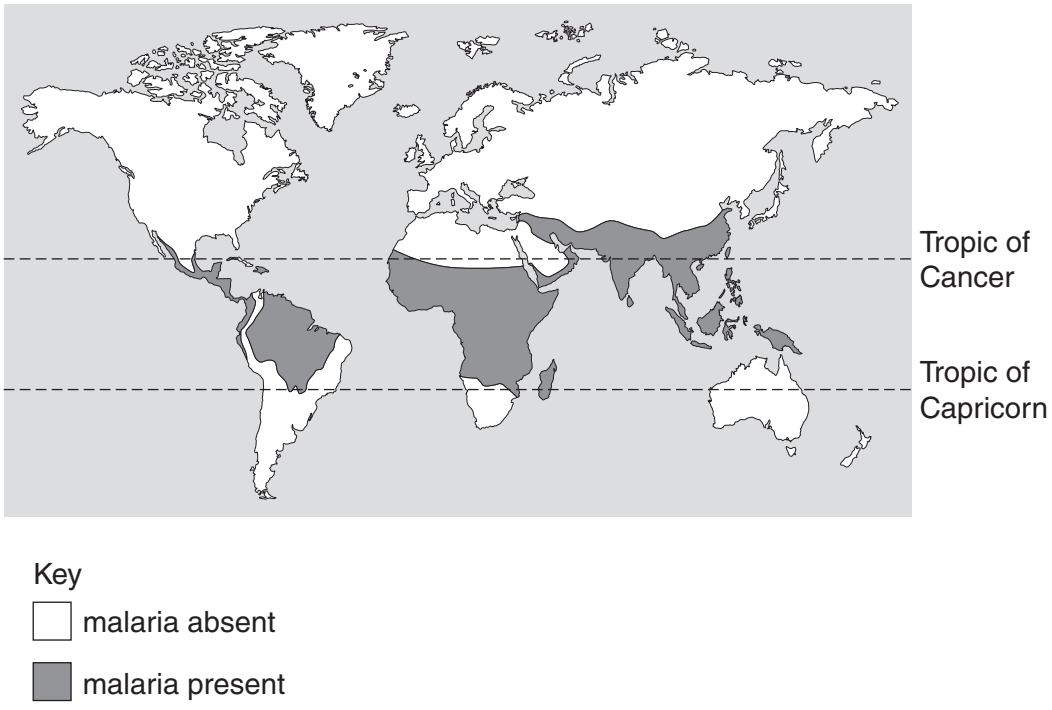


Fig. 4.1

(c) Unlike malaria, TB is found across the whole world.

For Examiner's Use

Explain why malaria shows the distribution pattern shown in Fig. 4.1, but TB is found everywhere.

.....

.....

.....

.....

.....

.....

.....

.....[4]

(d) Vaccinations are used to control infectious diseases. They were used as part of the programme to eradicate smallpox and as part of the continuing programmes against diseases such as polio and measles.

Smallpox was eradicated from the world in the 1970s. Polio is likely to be the next infectious disease to be eradicated. TB and malaria continue to be important diseases.

Explain how vaccination provides immunity as an important part of programmes to control and eradicate infectious diseases.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[5]

[Total: 12]

5 **(a)** Name the stage during the mitotic cell cycle when replication of DNA occurs.

.....[1]

For Examiner's Use

(b) Fig. 5.1 shows details of DNA replication.

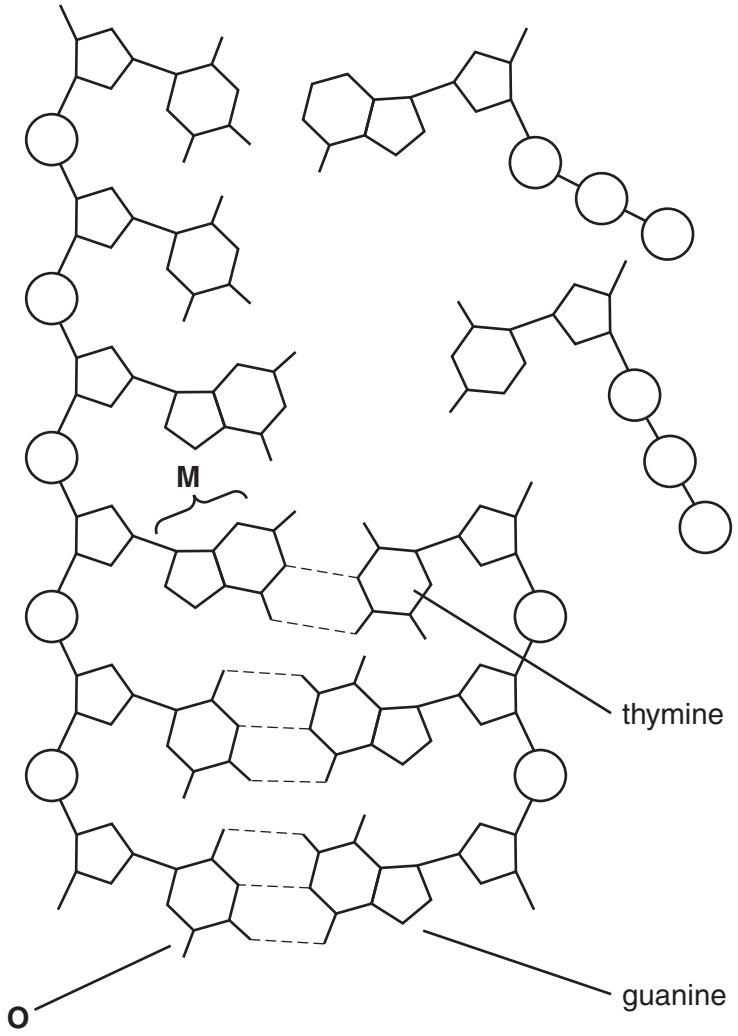


Fig. 5.1

(i) Name the bonds shown by the dashed lines on Fig. 5.1.

.....[1]

(ii) Name the nitrogenous bases, **M** and **O**.

M .....

O .....[1]

(c) Explain why DNA replication is described as *semi-conservative*.

For Examiner's Use

.....

.....

.....

.....

.....[2]

(d) The enzyme that catalyses the replication of DNA checks for errors in the process and corrects them. This makes sure that the cells produced in mitosis are genetically identical.

Explain why checking for errors and correcting them is necessary.

.....

.....

.....

.....

.....[2]

[Total: 7]

For Examiner's Use

6 Many species of legume grow in nitrate-deficient soils in the tropics. Some of these are large trees such as the flamboyant tree, *Delonix regia*.

Bacteria of the genus *Rhizobium* live inside swellings along the roots of legumes. These swellings are known as root nodules.

A student followed the cycling of nitrogen in an area with many flamboyant trees.

Fig. 6.1 summarises the flow of nitrogen in the area.

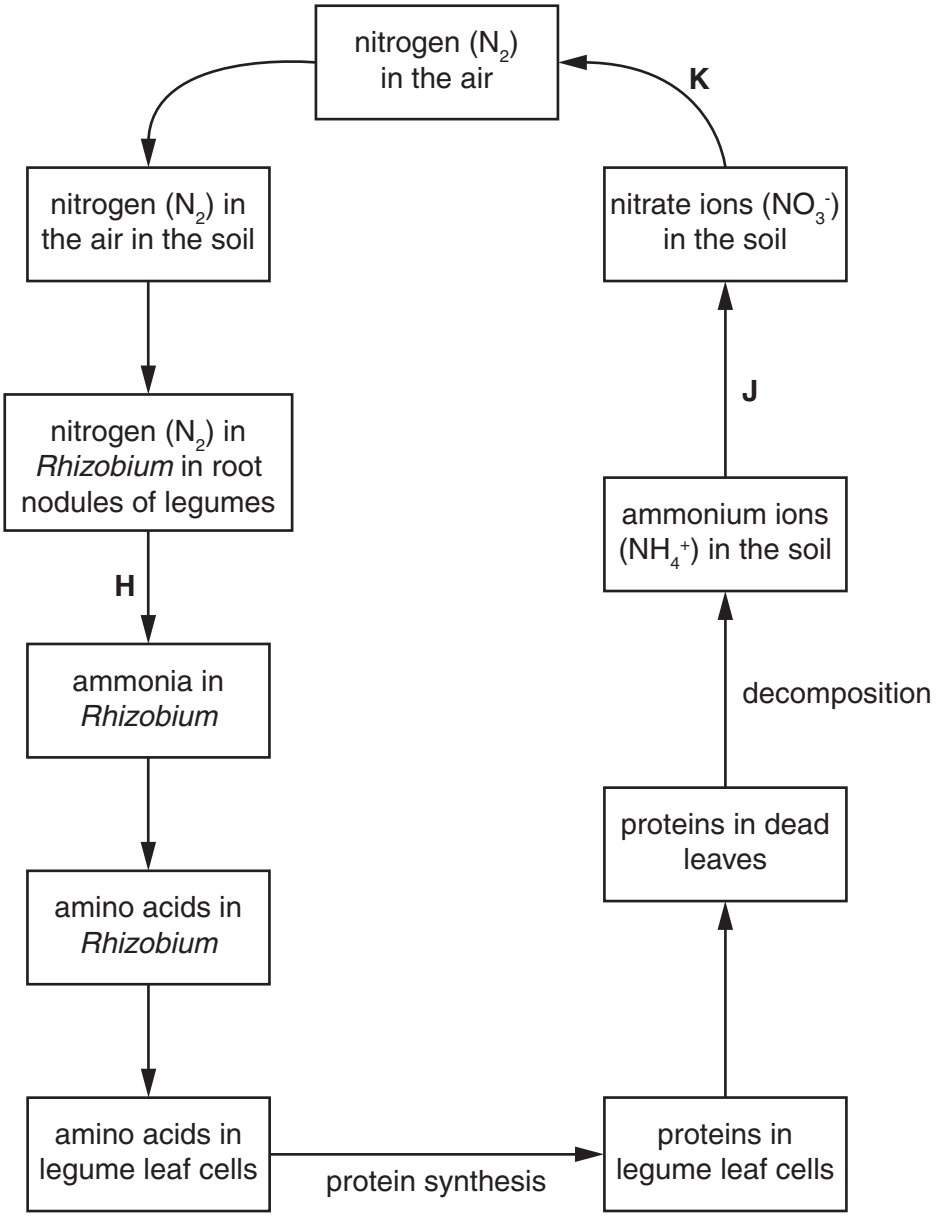


Fig. 6.1

(a) Name the processes that occur at **H**, **J** and **K**.

H .....

J .....

K .....[3]

© UCLES 2010

(b) Suggest the advantages gained by legumes of having *Rhizobium* living in their roots.

For Examiner's Use

.....

.....

.....

.....

.....[2]

[Total: 5]

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© UCLES 2010

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

5832627079

BIOLOGY **9700/22**

Paper 2 Structured Questions AS **May/June 2010**

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided at the top of this page.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
1	
2	
3	
4	
5	
6	
Total	

This document consists of **16** printed pages and **4** blank pages.

© UCLES 2010

Answer **all** the questions.

For Examiner's Use

1 Fig. 1.1 is a diagram of an electron micrograph of a plant cell.
Fig. 1.2 is a diagram of an electron micrograph of an animal cell.
Both diagrams are incomplete.

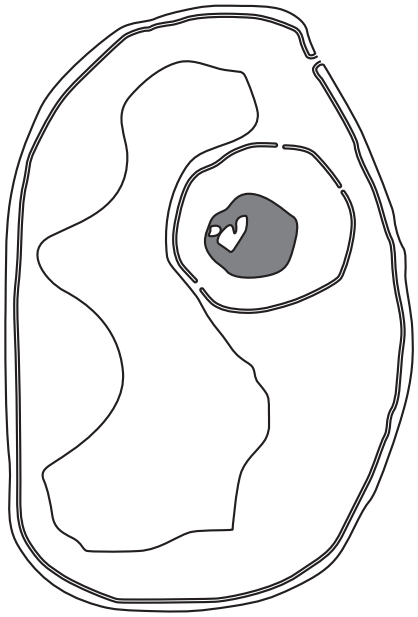


Fig. 1.1

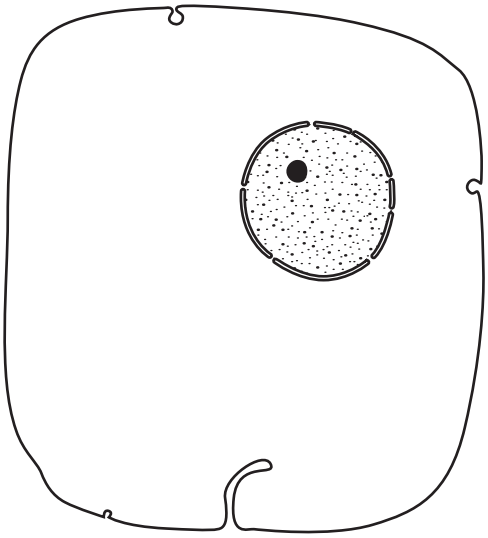


Fig. 1.2

(a) Explain how Fig. 1.1 can be identified as a plant cell.

.....

.....

.....

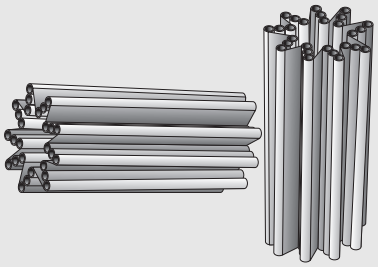
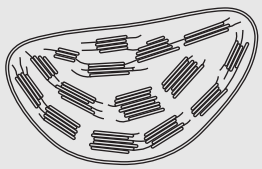
.....[2]

(b) Some organelles are missing from Figs 1.1 and 1.2. Information about these organelles is shown in the shaded boxes in Table 1.1.

For Examiner's Use

Complete the empty boxes in Table 1.1 by adding the correct information below each column heading.

Table 1.1

name of organelle	diagram of organelle(s) as seen under the electron microscope (not to scale)	one function of organelle	cell type(s) in which organelle is located
mitochondrion			animal and plant
		assemble microtubules to produce the mitotic spindle	
rough endoplasmic reticulum		protein synthesis	
Golgi apparatus			animal and plant
		photosynthesis	plant only

[8]

[Total: 10]

BLANK PAGE

© UCLES 2010

2 Fig. 2.1 is a diagram of a vertical section through a healthy mammalian heart.

For Examiner's Use

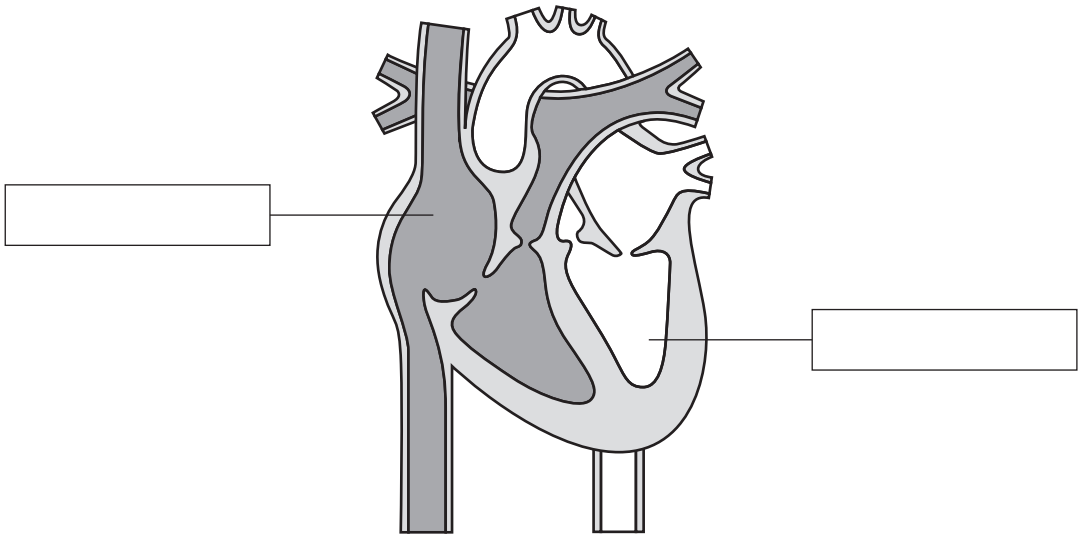


Fig. 2.1

(a) (i) Label the **two** chambers of the heart by writing in the boxes provided on Fig. 2.1. [1]

(ii) State two ways in which the **composition** of blood entering the right atrium is different to blood entering the left atrium.

1. .....

.....

2. .....

.....[2]

Some people are born with structural defects of the heart and its associated blood vessels. This is known as congenital heart disease. The dotted circles labelled **A** to **G** on Fig. 2.2 show some areas that are affected by different types of congenital heart disease.

For Examiner's Use

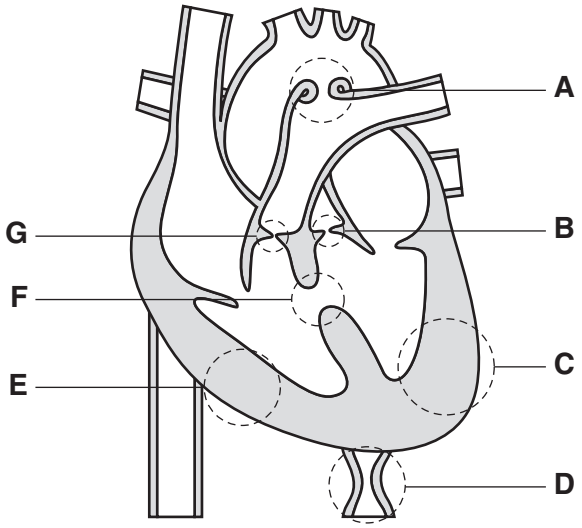


Fig. 2.2

The structural defects causing four types of congenital heart disease are described below:

- **patent ductus arteriosus** – a link between the pulmonary artery and aorta fails to close after birth
- **pulmonary stenosis** – a narrowing of the semilunar valve of the pulmonary artery
- **coarctation of the aorta** – a localised narrowing of the aorta
- **ventricular septal defect** – a hole in the septum between the ventricles.

(b) Match the **one** correct area from **A** to **G** on Fig. 2.2 with each of the congenital heart diseases.

The first one has been completed for you.

patent ductus arteriosus ..... **A** .....

pulmonary stenosis .....

coarctation of the aorta .....

ventricular septal defect ..... [3]

(c) Suggest and explain how the flow of blood in a person with patent ductus arteriosus differs from that of a person with a healthy heart.

For Examiner's Use

.....

.....

.....

.....

.....

.....[3]

[Total: 9]

3 The HIV/AIDS pandemic has had a very large impact on life expectancy in many African countries.

Table 3.1 shows estimated data for seven African countries for

- the average life expectancy of an individual born in 2002
- the percentage of the population testing positive for HIV in 2002
- the average life expectancy of an individual born in 2002 **if there was no HIV/AIDS pandemic**.

Table 3.1

country	life expectancy / years		percentage of population testing positive for HIV
	without HIV/AIDS	with HIV/AIDS	
Botswana	72.4	33.9	35.8
Côte d'Ivoire	55.6	42.8	10.8
Kenya	65.6	45.5	14.0
Malawi	56.3	38.5	16.0
South Africa	66.3	48.8	19.9
Zambia	55.4	35.3	20.0
Zimbabwe	69.0	40.2	25.1

(a) Using the 'without HIV/AIDS' and 'with HIV/AIDS' data shown in Table 3.1, calculate the percentage decrease in life expectancy for Botswana.

Show your working and give your answer to the nearest whole number.

Answer = ... % [2]

© UCLES 2010

For Examiner's Use

(b) Suggest two reasons for the differences shown in estimated life expectancy **without** HIV/AIDS between the different African countries.

1. .....

.....

.....

2. .....

.....

.....[2]

(c) After studying the data in Table 3.1, a student concluded that:

"There is a correlation between the percentage of the population testing positive for HIV and the decrease in estimated life expectancy with HIV/AIDS."

(i) With reference to Table 3.1, explain why the data do **not** fully support the student's conclusion.

.....

.....

.....

.....

.....

.....[2]

(ii) List two factors in the prevention and control of HIV/AIDS that would help to improve average life expectancy in the African countries shown in Table 3.1.

1. .....

.....

2. .....

.....[2]

(d) A person who is confirmed as HIV-positive has tested positive for the presence of antibodies to HIV.

For Examiner's Use

Outline the events that occur in a newly-infected person, which lead to the production of antibodies to HIV.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[5]

[Total: 13]

© UCLES 2010

4 Fig. 4.1 shows the primary structure of a lysozyme molecule, an enzyme found in tears, saliva and in lysosomes.

For Examiner's Use

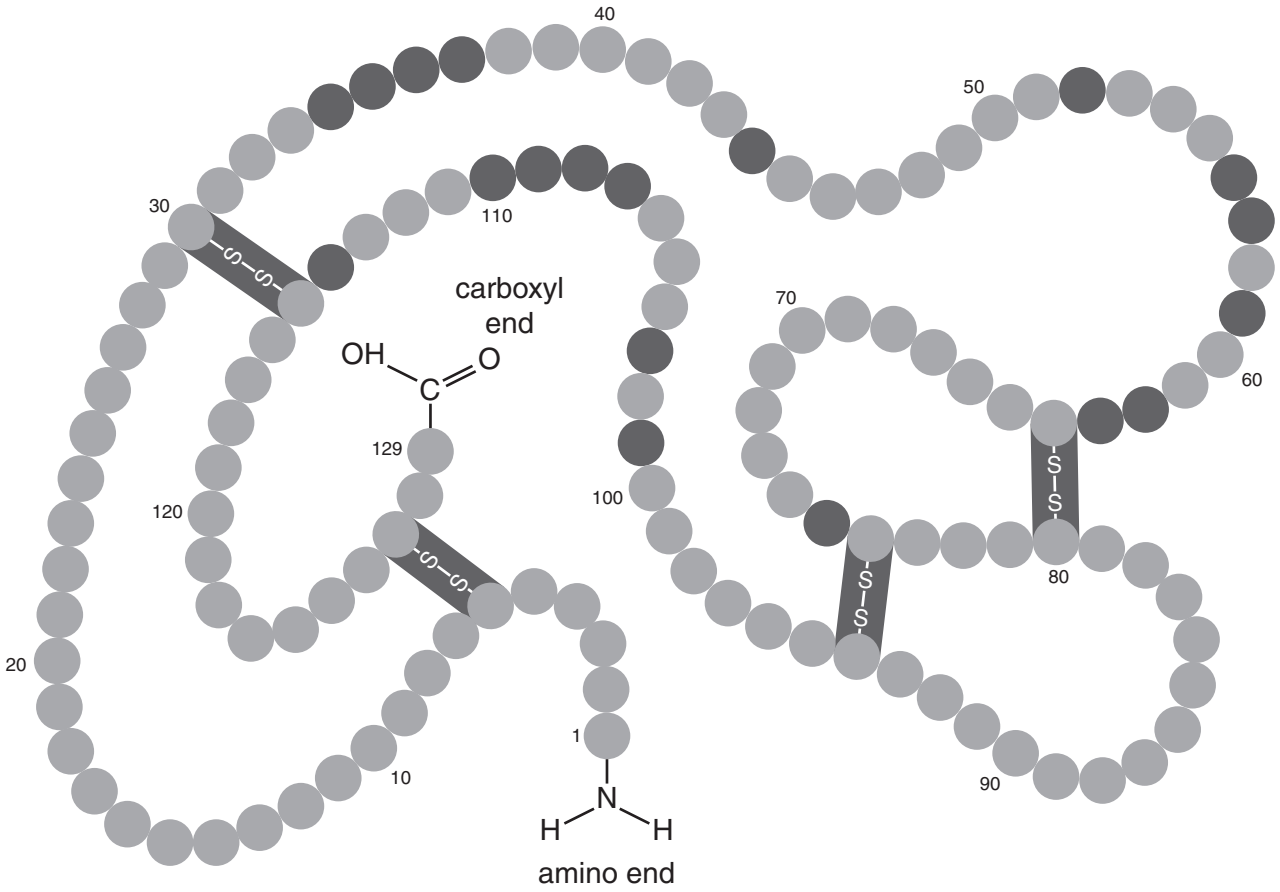


Fig. 4.1

(a) (i) Explain what is meant by the term *primary structure*.

.....

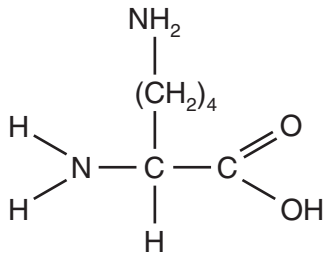
.....

.....[1]

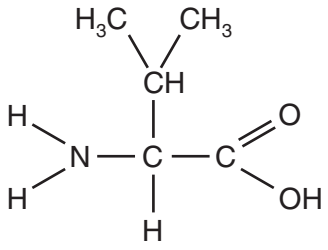
For Examiner's Use

(ii) The molecular structure of the first two amino acids of lysozyme, lysine and valine, is shown below.

Use the space to show how these amino acids become linked in a condensation reaction.



lysine



valine

[3]

(b) Proteins, such as the enzyme lysozyme, have a secondary structure and a tertiary structure.

(i) Describe the secondary and tertiary structure of an enzymatic protein, such as lysozyme.

secondary .....

.....

.....

.....

tertiary .....

.....

.....

.....

.....

.....

.....[5]

(ii) State why it is important for enzymes, such as lysozyme, to possess a tertiary structure.

For Examiner's Use

.....

.....[1]

(c) Some people have a rare disease caused by a single change in the DNA nucleotide sequence of the gene coding for lysozyme. The change leads to the formation of an insoluble protein that has a different structure to the normal soluble lysozyme molecule.

Suggest how a change in the gene can lead to the differences observed between the normal lysozyme and the changed lysozyme.

.....

.....

.....

.....

.....

.....[3]

[Total: 13]

5 Fig. 5.1 is a diagram of part of the human gas exchange system.

For Examiner's Use

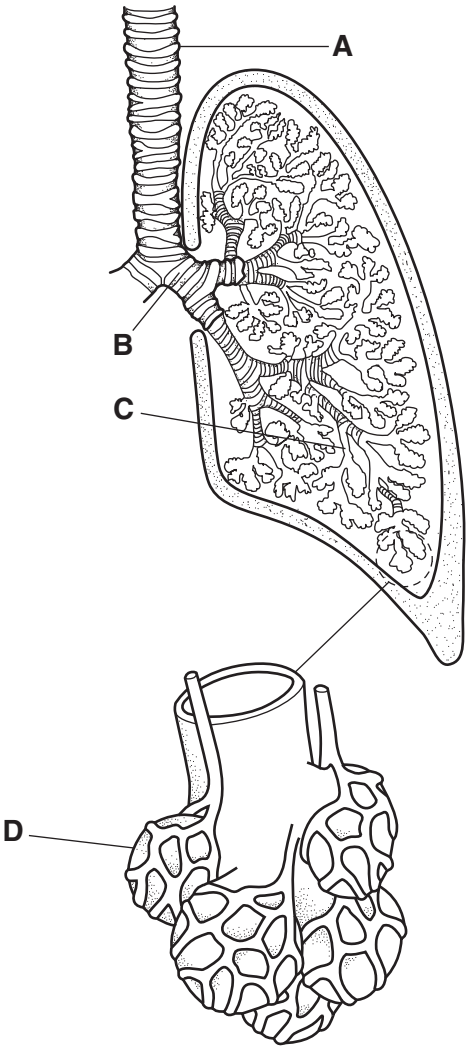


Fig. 5.1

© UCLES 2010

For Examiner's Use

(a) Complete the table to show the distribution of the structural features within the parts of the gas exchange system, **A** to **D**, shown in Fig. 5.1.

Use a tick (✓) if the feature is present and a cross (✗) if the feature is absent. Some of the boxes have been completed for you.

structure	features				
	cartilage	ciliated epithelium	elastic fibres	goblet cells	smooth muscle
A		✓		✓	
B			✓		
C				✓	✓
D	✗				✗

[4]

(b) Explain the role of goblet cells and cilia in the maintenance of a healthy gas exchange system.

goblet cells .....

.....

.....

.....

.....

cilia .....

.....

.....

.....

.....[4]

[Total: 8]

6 When investigating ecosystems, food chains and food webs are constructed.

For Examiner's Use

Read the passage below about trophic relationships on one of the Galapagos Islands.

Marine iguanas feed on kelp, which grows attached to rocks in shallow waters. Kelp is a photosynthetic organism. Further inland, xerophytes are grazed upon by land iguanas. A great diversity of herbivorous insects, including many species of short-horned grasshoppers, feed on the xerophytes. An analysis of the gut contents of lava lizards reveals that these insects are prey for the lizards. The lizards are preyed upon by Galapagos snakes. The snakes also hunt grasshoppers and newly hatched iguanas. The Galapagos hawk has a varied diet and catches animals such as Galapagos snakes, short-horned grasshoppers, small lava lizards and newly hatched iguanas.

(a) Complete Fig. 6.1 to make a food web by:

- filling in the blank boxes with the names of the organisms
- adding arrows to show the direction of energy flow between all the different links in the food web. [4]

For Examiner's Use

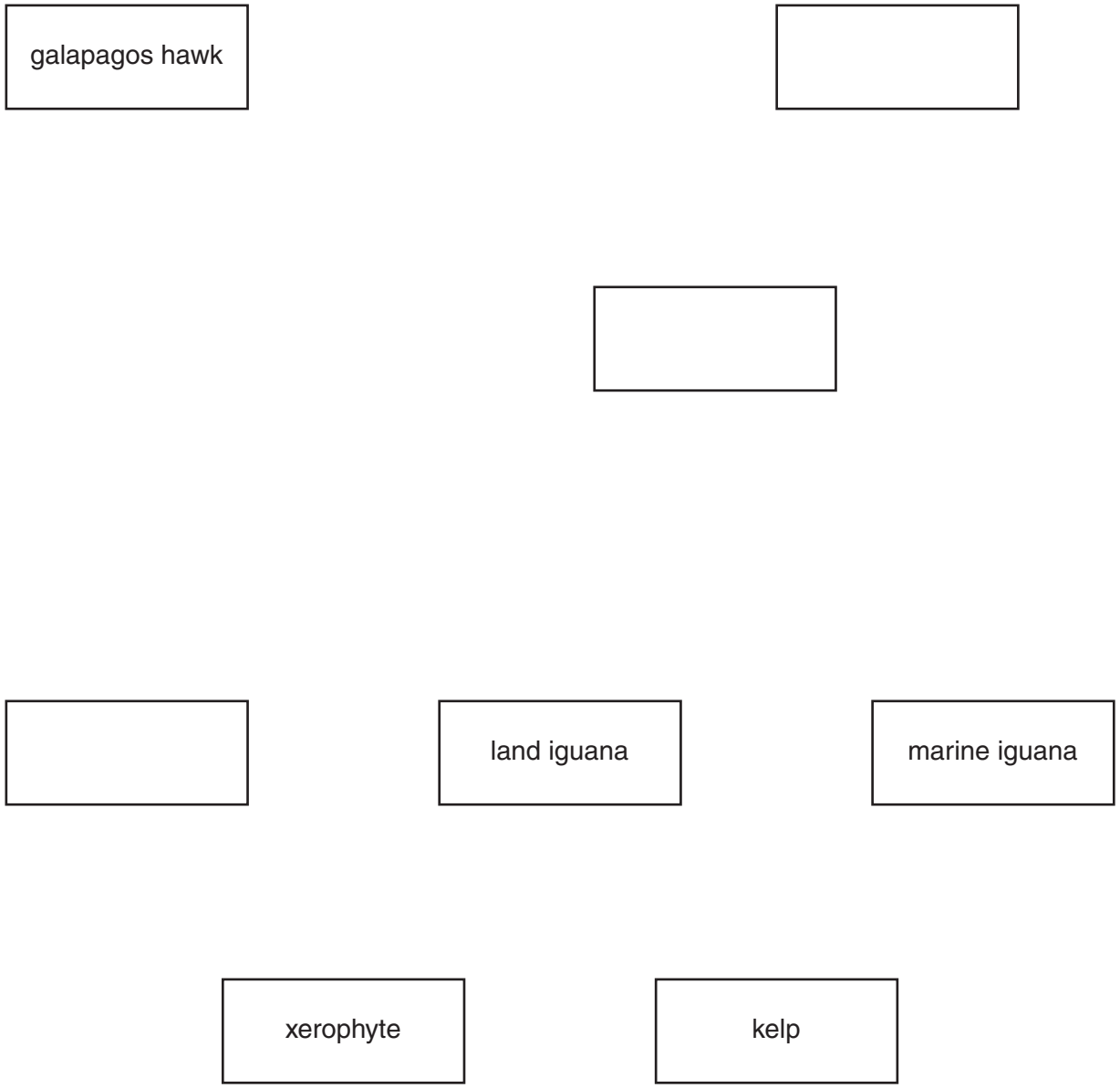


Fig. 6.1

(b) State which of the organisms in Fig. 6.1 are the producers. Explain your choice.

.....

.....

.....

.....

.....[3]

[Total: 7]

BLANK PAGE

© UCLES 2010

BLANK PAGE

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© UCLES 2010

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

9072149363

BIOLOGY **9700/23**

Paper 2 Structured Questions AS **May/June 2010**

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces provided at the top of this page.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs, or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
1	
2	
3	
4	
5	
6	
Total	

This document consists of **15** printed pages and **1** blank page.

© UCLES 2010

Answer **all** the questions.

For Examiner's Use

1 Fig. 1.1 shows part of an animal cell viewed with an electron microscope.

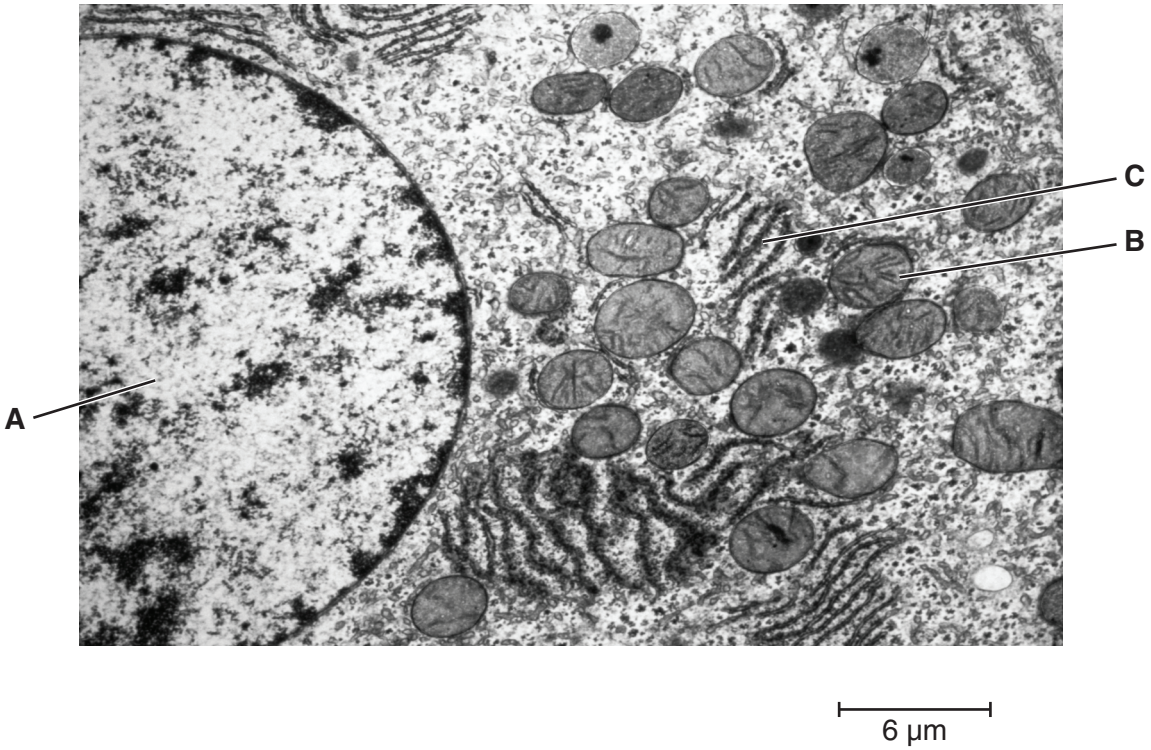


Fig. 1.1

(a) Name the structures **A** to **C.**

A .....

B .....

C .....[3]

(b) **(i)** State the function of structure **C**.

.....[1]

(ii) Explain why structure **C** cannot be seen using a light microscope.

.....

.....

.....

.....[2]

(c) Suggest **one** disadvantage of the electron microscope compared to the light microscope for the study of cells.

For Examiner's Use

.....

.....[1]

(d) Calculate the magnification of the image in Fig. 1.1.

Show your working and give your answer to the nearest whole number.

Answer = ...[2]

[Total: 9]

© UCLES 2010

[Turn over

2 Fig. 2.1 shows a diagram of a section through a human heart.

For Examiner's Use

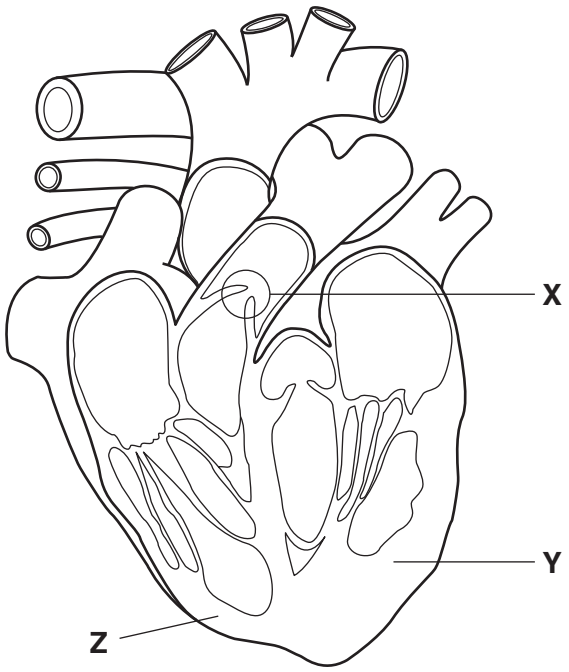


Fig. 2.1

(a) State the name and function of the circled structure labelled **X**.

name .....

function .....

.....

.....[3]

(b) Explain why the region labelled **Y** is thicker than the region labelled **Z**.

.....

.....

.....

.....

.....

.....[3]

© UCLES 2010

(c) Cardiac muscle is described as myogenic as it naturally contracts and relaxes. With reference to the structures and tissues within the heart, describe how the cardiac cycle is initiated and coordinated.

For Examiner's Use

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[5]

[Total: 11]

3 The amino acid sequence of the protein hormone insulin is shown in Fig. 3.1.

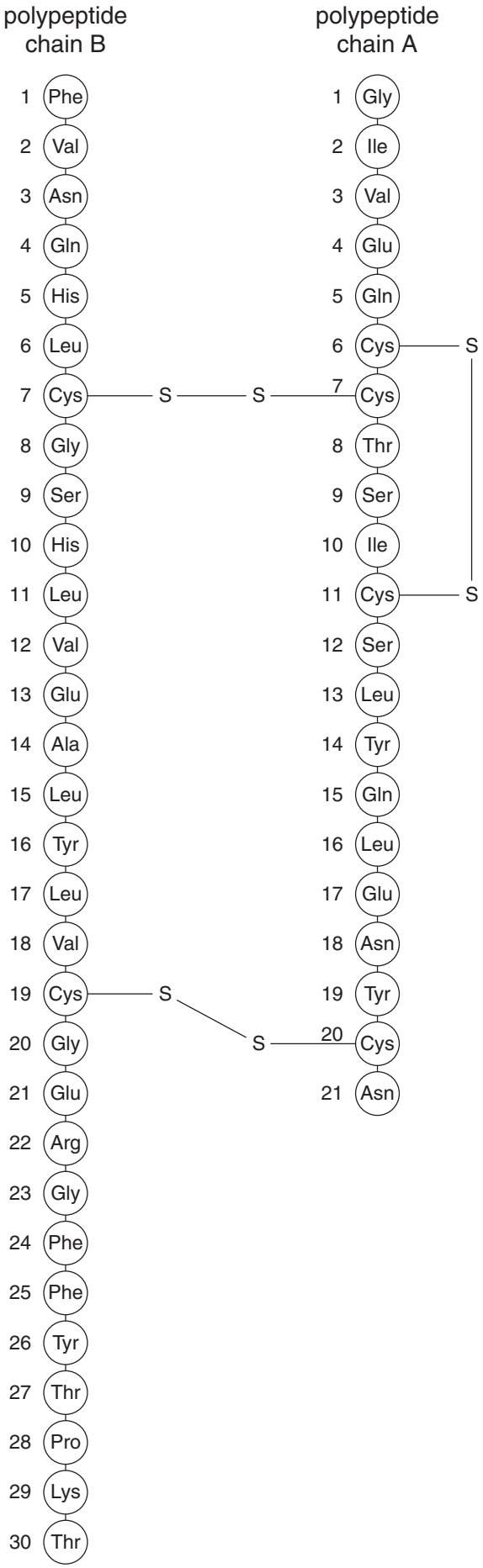


Fig. 3.1

© UCLES 2010

For Examiner's Use

(a) With reference to Fig. 3.1, state

(i) which two levels of protein structure are shown

1. .....

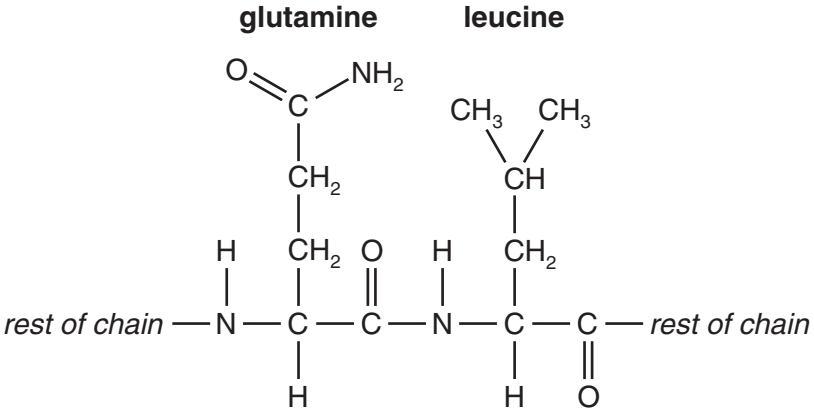
2. .....[2]

(ii) the name of the structures responsible for holding the two polypeptide chains together.

.....[1]

(b) Many people with diabetes need to take regular injections of insulin. Insulin in the form shown in Fig. 3.1 cannot be taken by mouth as it would be hydrolysed by proteases in the gut.

In the space below, draw a diagram to show how the peptide bond between glutamine 15 and leucine 16 in polypeptide chain A could be hydrolysed and show the products of the hydrolysis.



[3]

[Total: 6]

4 The control of malaria is one of the top priorities of the World Health Organization (WHO). At present, there is no effective vaccine for the disease, so other preventative measures must be taken to control the spread of malaria.

For Examiner's Use

(a) Describe **one** method of controlling the spread of malaria by targeting its vector and explain its effect.

.....

.....

.....[2]

(b) Explain why it has been difficult to develop an **effective** vaccine for malaria.

.....

.....

.....

.....

.....

.....

.....[3]

© UCLES 2010

(c) Another method of preventing malaria is to take drugs, such as chloroquine, but resistance to these drugs among certain species of the malarial parasite is increasing. New drugs are being developed.

For Examiner's Use

A laboratory investigation was carried out to determine the effect of a new drug on two strains of the malarial parasite *Plasmodium falciparum*. The results are shown in Fig. 4.1.

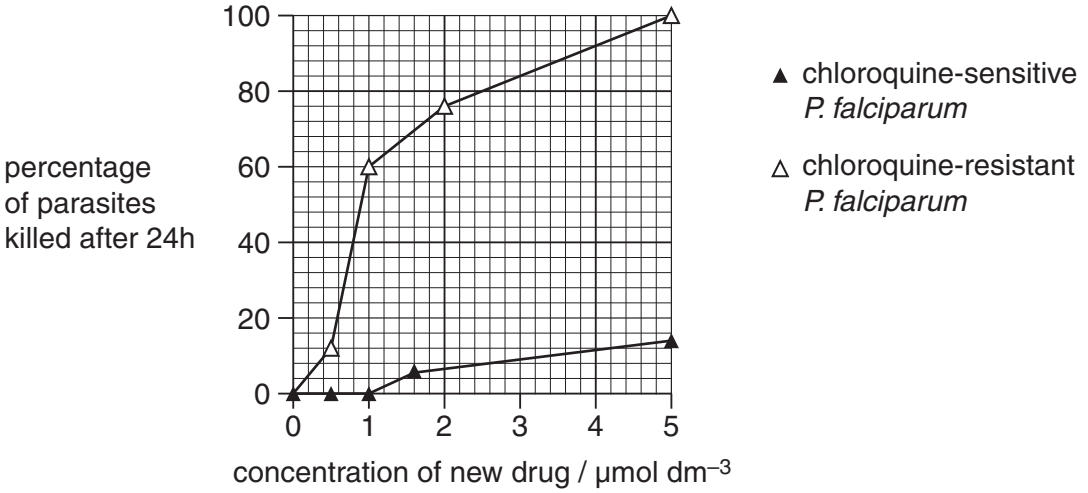


Fig. 4.1

With reference to Fig. 4.1, compare the effect of increasing the concentration of the drug on the chloroquine-resistant and chloroquine-sensitive strains of *P. falciparum*.

.....

.....

.....

.....

.....

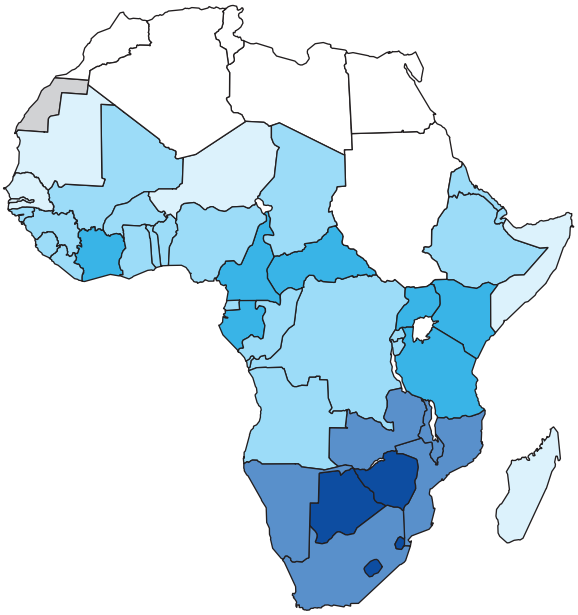
.....

.....[3]

(d) When a person becomes infected with the Human Immunodeficiency Virus (HIV) they become more susceptible to infection by the malarial parasite.

Fig. 4.2 shows maps of Africa produced by the WHO.

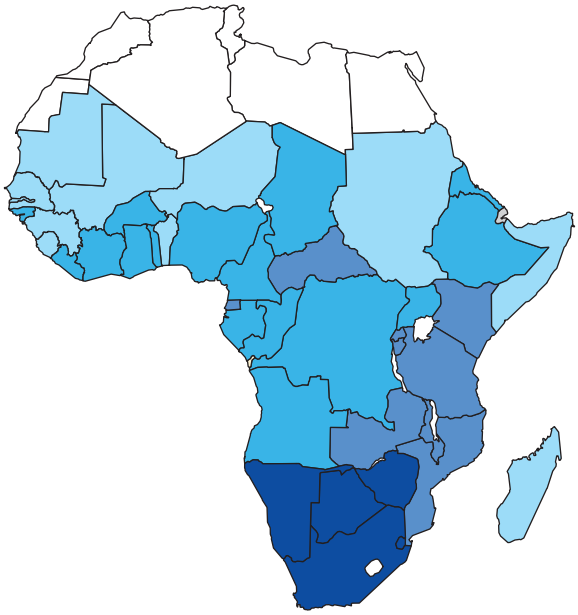
- Fig. 4.2a shows the percentage population of each country testing positive for HIV
- Fig. 4.2b shows the percentage **increase** in malaria as a result of HIV infection in each country.



HIV prevalence (%)

- 20.0% – 28.0%
- 10.0% – <20.0%
- 5.0% – <10.0%
- 1.0% – <5.0%
- <1.0%
- No data available
- Not included in analysis

Fig. 4.2a



Malaria prevalence (%)

- 50%–110% increase
- 8%–49% increase
- 3%–7% increase
- 0%–2% increase
- Not included in analysis

Fig. 4.2b

© UCLES 2010

(i) Explain how the information in Fig. 4.2 supports the idea that there is a link between HIV infection and susceptibility to malaria.

For Examiner's Use

.....

.....

.....

.....[2]

(ii) Suggest how HIV infection may have led to an increase in malarial infections in these countries.

.....

.....

.....

.....[2]

[Total: 12]

For Examiner's Use

5 **(a)** Some bacteria, such as *Rhizobium*, carry out nitrogen fixation, which is an important process in the nitrogen cycle.

Explain what is meant by the term *nitrogen fixation*.

.....

.....

.....

.....[3]

(b) An important enzyme in the nitrogen cycle is urease, which catalyses the hydrolysis of urea to ammonia. This reaction is shown below:

$$(NH_2)_2CO + H_2O \xrightarrow{\text{urease}} 2NH_3 + CO_2$$

(i) State the name of this process in the nitrogen cycle.

.....[1]

(ii) Explain the importance of this process in making nitrogen from animals available for uptake by plants.

.....

.....

.....

.....[2]

© UCLES 2010

For Examiner's Use

(c) The enzyme urease is known to be affected by competitive inhibitors. A student carried out an investigation to determine the percentage of urea hydrolysed by urease at various time intervals

- without any inhibitor
- with a competitive inhibitor.

The experiment was carried out in test tubes set up as follows:

Tube **A** – 1 cm^3 of urease solution, 10 cm^3 pH 7.5 buffer solution, 1 cm^3 urea solution.
Tube **B** – 1 cm^3 urease solution, 9 cm^3 pH 7.5 buffer solution, 1 cm^3 inhibitor, 1 cm^3 urea solution.
Tube **C** – 1 cm^3 water, 10 cm^3 pH 7.5 buffer solution, 1 cm^3 urea solution.

The results are shown in the table below.

time / min	percentage of urea remaining		
	Tube **A**	Tube **B**	Tube **C**
0	100	100	100
5	55	99	100
10	29	98	100
15	14	96	100
20	8	95	100
25	5	92	100
30	3	90	100

(i) State how Tube **C** acts as a control for this investigation.

.....

.....[1]

(ii) Explain the difference in results between Tube **A** and Tube **B**.

.....

.....

.....

.....

.....

.....

.....[4]

[Total: 11]

For Examiner's Use

6 Various structures in the human gas exchange system are adapted in different ways to perform their specific functions.

(a) Complete the table below using a tick ✓ or cross ✗ in each box to show whether or not the structure shows the particular feature.

Two boxes have been completed for you.

	lined with cilia	reinforced with cartilage	site of gas exchange	contains smooth muscle
trachea			✗	
bronchus				
bronchiole				✓
alveolus				

[4]

(b) State the two ways in which the concentration gradients of oxygen and carbon dioxide are maintained for efficient gas exchange.

1. .....

.....

2. .....

.....[2]

(c) The alveoli in the lungs have elastic fibres in their walls.

(i) State **one** function of the elastic fibres.

.....

.....[1]

(ii) Name the medical condition caused by breakdown of the elastic fibres.

.....[1]

© UCLES 2010

(d) Cigarette smoke contains tar, a substance which has several harmful effects on **the cells** lining the gas exchange system.

For Examiner's Use

Outline three of these effects.

1. .....

.....

2. .....

.....

3. .....

.....[3]

[Total: 11]

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.

© UCLES 2010