

**ADVANCED SUBSIDIARY GCE****BIOLOGY**

Human Health and Disease

2802

Candidates answer on the question paper

OCR Supplied Materials:

None

Other Materials Required:

- Electronic calculator
- Ruler (cm/mm)

Wednesday 14 January 2009**Afternoon****Duration: 1 hour**

Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- You will be awarded marks for the quality of written communication where this is indicated in the question.
- You may use an electronic calculator.
- You are advised to show all the steps in any calculations.
- This document consists of **12** pages. Any blank pages are indicated.

FOR EXAMINER'S USE

Qu.	Max.	Mark
1	7	
2	11	
3	13	
4	11	
5	10	
6	8	
TOTAL	60	

Answer **all** the questions.

- 1 Fig. 1.1 shows a drawing of a section of lung tissue.

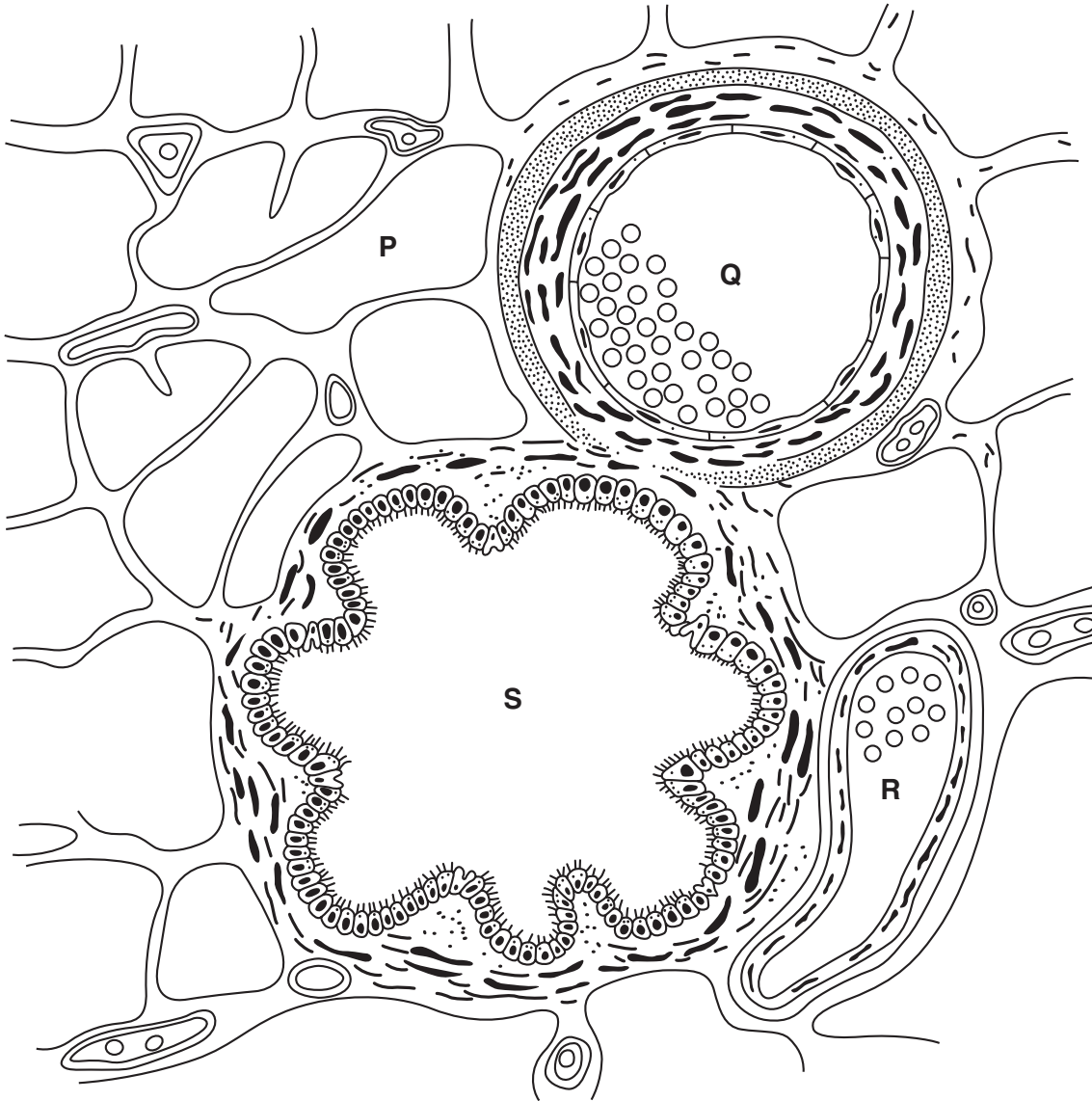


Fig. 1.1

- (a) The letters **P**, **Q**, **R** and **S** each appear in the centre of a structure.

Name the structures labelled **P**, **Q**, **R** and **S**.

P

Q

R

S [4]

- (b) (i) The wall of structure **P** contains elastic fibres which are not visible in the diagram.

State the function of these elastic fibres.

.....
..... [1]

- (ii) The wall of structure **Q** contains smooth muscle.

State the function of the smooth muscle.

.....
..... [1]

- (iii) Structure **S** is lined by cilia.

State the function of the cilia.

.....
..... [1]

[Total: 7]

2 (a) Anorexia is an eating disorder that is also classed as a disease.

(i) State what is meant by the term *disease*.

.....

.....

.....

..... [2]

(ii) Describe **three** symptoms of anorexia.

1

2

3 [3]

(b) Research has shown that the average age for the onset of anorexia is 17. However, it might start in children as young as nine.

Suggest how the health authorities might make use of this type of data.

.....

.....

.....

..... [2]

- (c) Anorexia can be placed in more than one category of disease. A student suggested that anorexia could be placed in the categories listed in the table below.

Explain what is meant by each category listed. The first one has been done for you.

category	explanation
physical	a disease which is associated with permanent or temporary damage to part of the body
mental	
social	
degenerative	
self-inflicted	

[4]

[Total: 11]

- 3 Fig. 3.1 shows the number of men and women with tuberculosis (TB) in England and Wales between 1988 and 2005.

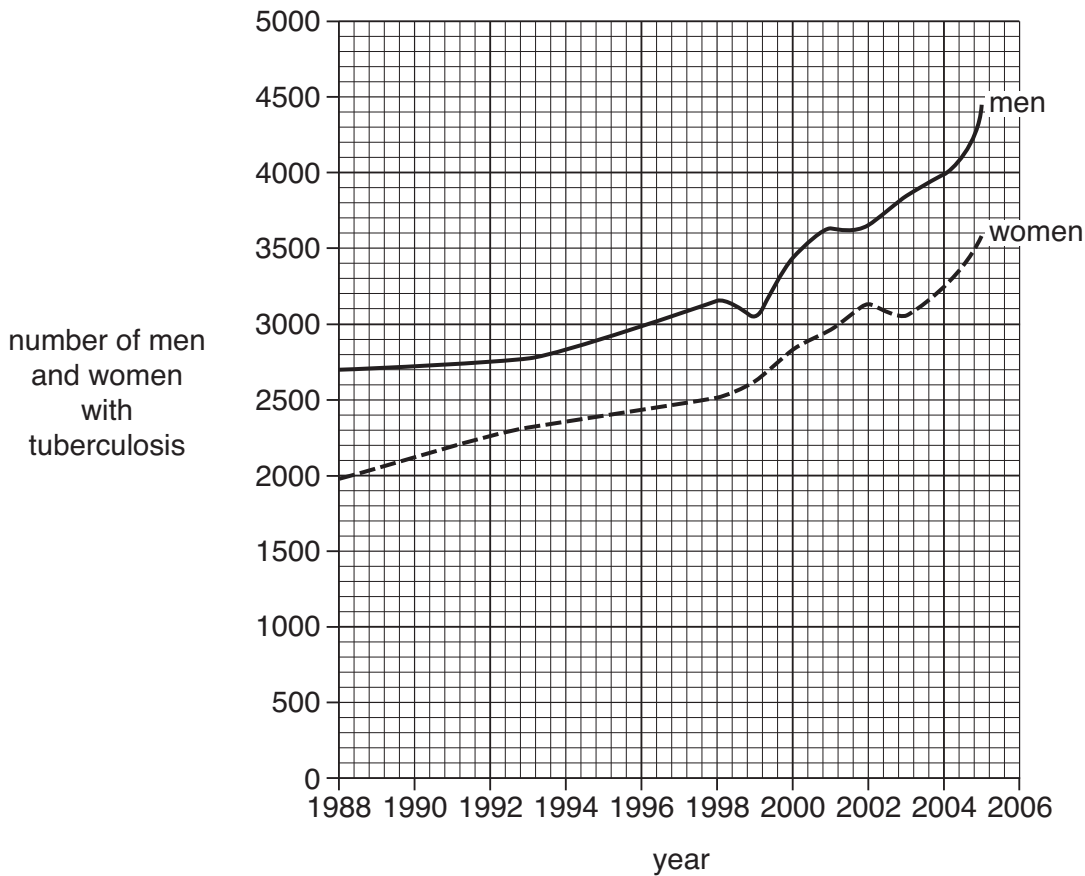


Fig. 3.1

- (a) (i) Calculate the **percentage change** in the number of **men** with tuberculosis between 1988 and 2005. Round your answer to the **nearest whole number**. Show your working.

Answer =% [2]

- (ii) Using Fig. 3.1, describe how the number of people with tuberculosis in England and Wales has changed between 1988 and 2005.

.....

.....

.....

.....

.....

.....

..... [3]

- (b) (i) **Name** the organism that causes tuberculosis.

..... [1]

- (ii) State **two** ways in which this organism is transmitted.

1

2 [2]

- (c) Table 3.1 lists the results of treatments for the 1163 newly reported cases of tuberculosis in England and Wales during 2004. The results were collected towards the end of 2006.

Table 3.1

treatment completed	died	still being treated	treatment stopped	moved away	unknown outcome	total
777	59	47	6	24	250	1163

- (i) Using **only** the information in Table 3.1, suggest why tuberculosis is difficult to control even in economically advanced countries such as England and Wales.

.....

 [3]

- (ii) Treatment for tuberculosis consists of the use of a range of antibiotics.

Explain why a range of antibiotics must be used.

.....

 [2]

[Total: 13]

- 4 (a) The diets of many people in different parts of the world are deficient in at least one important component.

Table 4.1 lists some important dietary components and states **one** effect a deficiency may have on the body.

Complete the table.

Table 4.1

dietary component	effect of deficiency
iron	insufficient haemoglobin in the blood
vitamin A	
vitamin D	
carbohydrate	

[3]

- (b) In this question, one mark is available for the quality of spelling, punctuation and grammar.

Describe **and** explain the possible links between diet and coronary heart disease (CHD).

.....

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[Total: 11]

- 5 (a) Complete the following paragraph using the most appropriate word or words.

Cigarette smoke contains a number of harmful chemicals. The tar present in this smoke contains a number of chemicals that cause cancer. These are called Tar lines the inner surface of the lungs and reduces the diffusion of from the air to the blood. Carbon monoxide in the smoke also enters the blood and combines with This reduces the ability of the blood to carry and the smoker may be breathless when trying to exercise. A drug called in the smoke also enters the blood stream and causes an increase in blood pressure. [5]

- (b) (i) Suggest how the drug from the smoke can cause an increase in blood pressure.

.....

 [2]

- (ii) State **three** ways in which a government could attempt to reduce the effects of cigarette smoke on members of the population.

1
 2
 3 [3]

[Total: 10]

- 6 In 1980, the World Health Organisation announced that the world was free from smallpox. This was the result of a campaign lasting over 20 years. The campaign relied upon the vaccination of at least 80% of the populations at risk of the disease, and careful surveillance to identify new cases rapidly.

(a) Outline the way in which vaccination can bring about immunity.

.....

.....

.....

.....

.....

..... [3]

(b) When new cases of smallpox were reported, ring vaccination was used. This means vaccinating everyone in the household and in all the surrounding households.

Suggest how ring vaccination helped in the eradication programme.

.....

.....

.....

..... [2]

(c) State **three other** reasons for the success of the smallpox eradication programme.

1

.....

2

.....

3

..... [3]

[Total: 8]

END OF QUESTION PAPER

PLEASE DO NOT WRITE ON THIS PAGE



Copyright Acknowledgements:

- Fig. 3.1 Sources: 1988, 1993, 1998 National Tuberculosis Survey; 1999–2006 Enhanced Tuberculosis Surveillance, as at 20/07/2007, Health Protection Agency Centre for Infections, Health Protection Agency, www.hpa.org.uk.
- Table 3.1 Source: Health Protection Agency Centre for Infections, Health Protection Agency, www.hpa.org.uk.

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