UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

6340856724

BIOLOGY **0610/02**

Paper 2 Core **October/November 2007**

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 on all the work you hand in.
Write in dark blue or black pen.
You may use a pencil for any diagrams or graphs.
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	
7	
8	
9	
Total	

This document consists of **17** printed pages and **3** blank pages.

For Examiner's Use

1 Non-living things, such as a truck, have features that seem to be similar to those of living organisms.

Choose words from the list of characteristics of living things and match them to the statements about a truck.

excretion	**growth**	**movement**
nutrition	**respiration**	**sensitivity**

A truck needs to have a supply of diesel put into its fuel tank, similar to the need for .....[1] in animals. When this fuel is burnt exhaust fumes are removed, like the process of .....[2] in animals. Energy is released when this fuel is burnt. This matches the process of .....[3] in both animals and plants. This energy is used to turn the wheels of the truck, like the process of .....[4] in animals.

[4]

[Total: 4]

For Examiner's Use

2 **(a)** Fig. 2.1 shows the mean height of females from birth to 25 years of age.

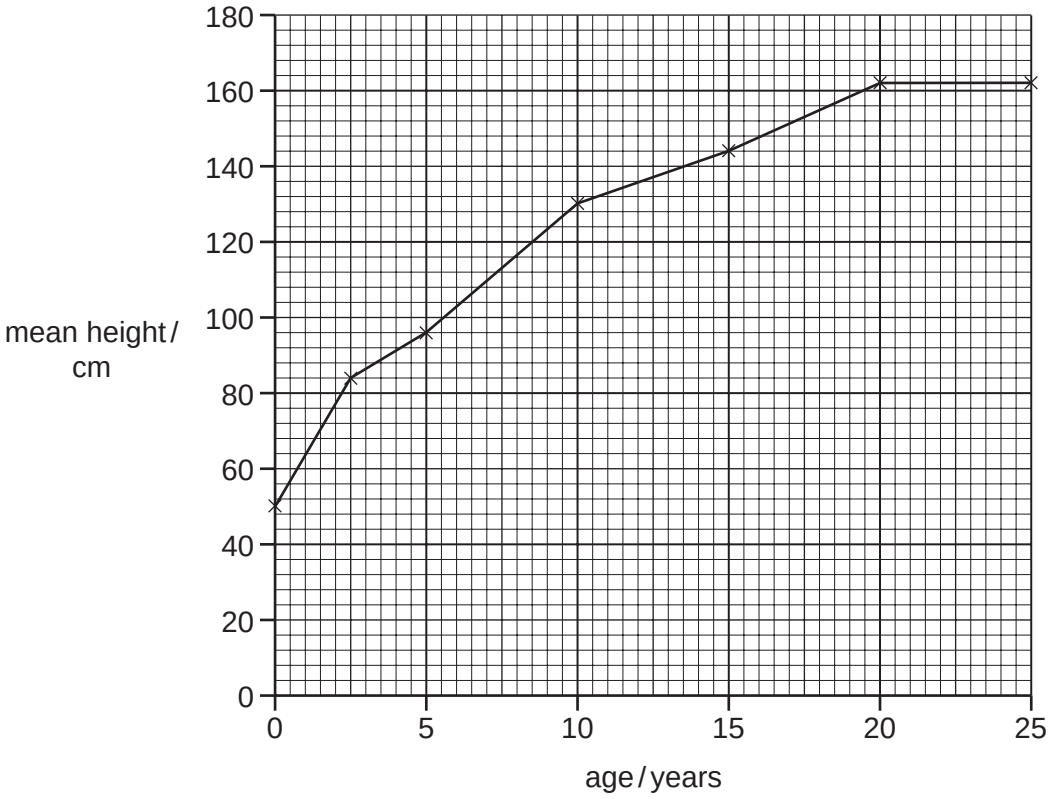

Fig. 2.1

(i) State in which two year period the growth rate of **females** is most rapid.

..... [1]

Table 2.1 lists similar information about males.

Table 2.1

age of males / years	mean height / cm
0	50
2	84
5	104
10	126
15	140
20	174
25	178

(ii) Plot the data for males on the graph, Fig. 2.1, using the same axes.

[3]

(iii) After the age of 2, at which two ages are the heights of males and females the same?

..... and ..... [2]

For Examiner's Use

(b) During the teenage years of both sexes changes happen to their bodies and their behaviour.

(i) State in which sex these changes normally occur first.

..... [1]

(ii) Describe three of these changes that happen in males.

1. .....

.....

2. .....

.....

3. .....

..... [3]

(iii) Name the hormone that triggers these changes in males.

..... [1]

(iv) State the name given to this stage of development that happens during the teenage (adolescent) years.

..... [1]

[Total: 12]

For Examiner's Use

3 Fig. 3.1 shows part of the female reproductive system during pregnancy.

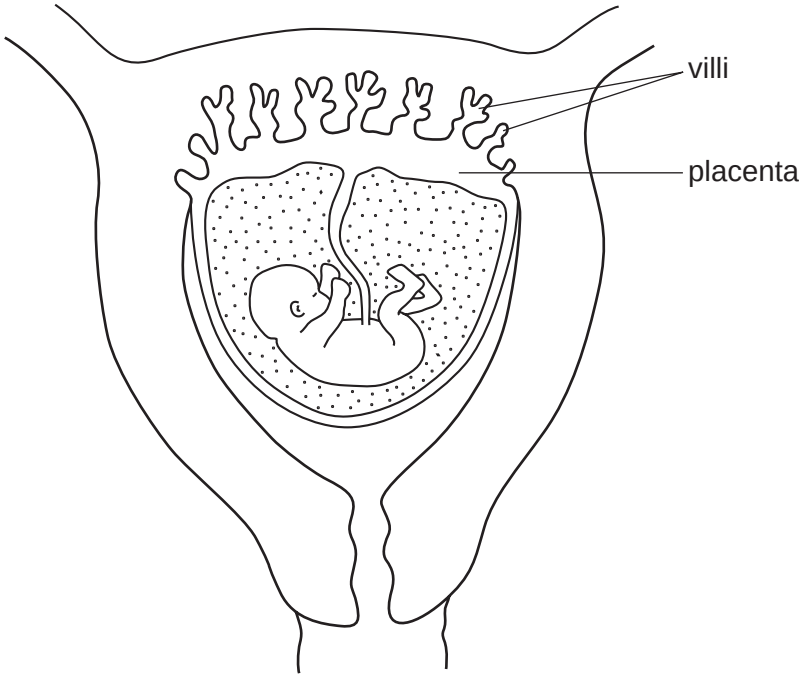

Fig. 3.1

(a) (i) One function of the placenta is to allow food materials to pass from the mother's blood to that of the fetus.

State two other functions of the placenta.

1. .....

.....

2. .....

..... [2]

(ii) The surface of the placenta has a large number of finger-like projections called villi. These extend into the surface of the uterus.

Explain the importance of these villi.

.....

.....

..... [2]

(b) On Fig. 3.1 mark with an **X** a place where the mother's blood and the blood of the fetus are close together.

[1]

For Examiner's Use

(c) The blood supply of the mother and the fetus are separate. Suggest three reasons why this is important for the fetus.

1. .....

.....

2. .....

.....

3. .....

..... [3]

[Total: 8]

For Examiner's Use

4 Fig. 4.1 shows changes in the concentration of oxygen in a river into which untreated sewage is being released.

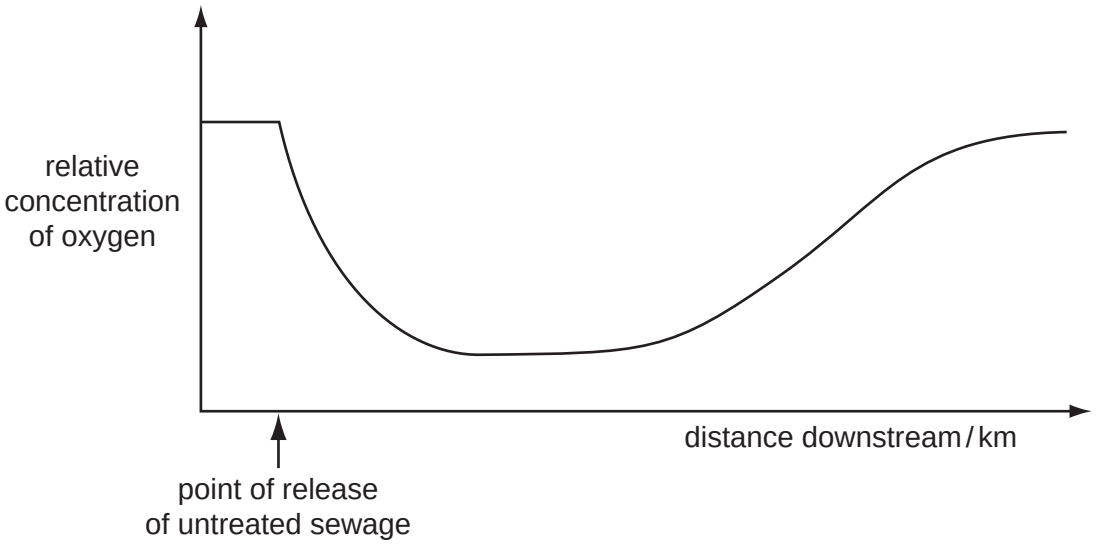

Fig. 4.1

(a) Describe the changes in oxygen concentration shown by the graph.

.....

.....

..... [2]

(b) Suggest how these changes in the concentration of oxygen have been produced.

.....

.....

.....

.....

..... [4]

[Total: 6]

5 Fig. 5.1 shows a food web.

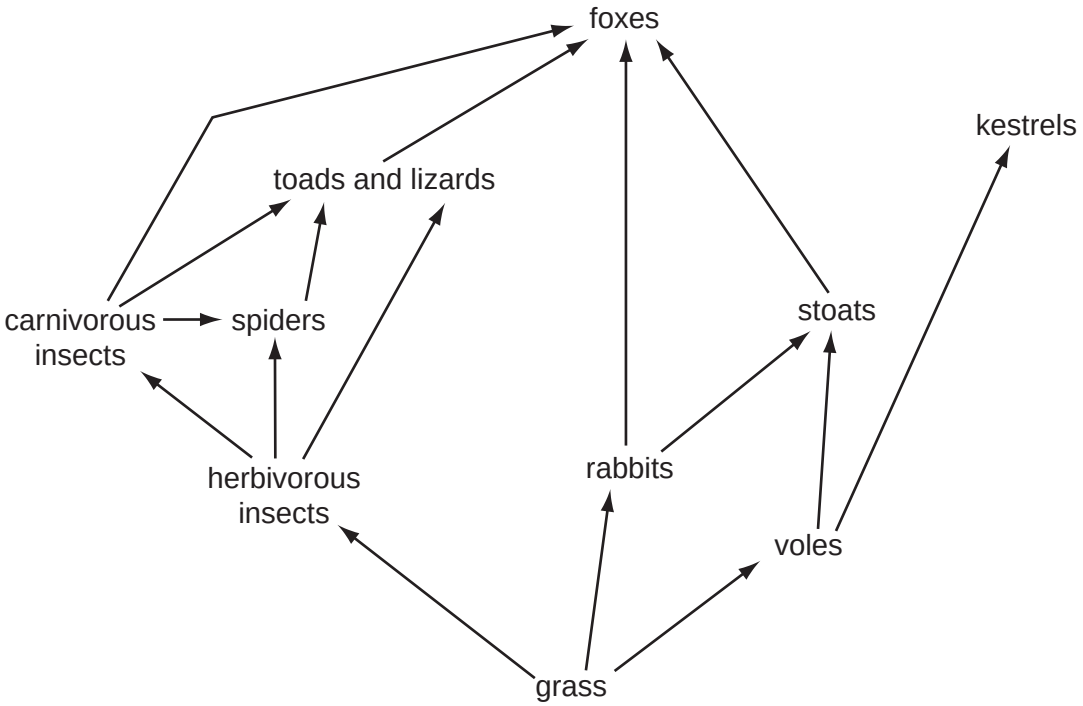

Fig. 5.1

(a) (i) Complete the food chain from this food web.

[1]

(ii) Complete each column of Table 5.1 by naming **two** appropriate organisms from the food web. Some organisms could occur in more than one column.

Table 5.1

consumer	carnivore	herbivore

[3]

For Examiner's Use

(b) The overuse of some pesticides can make the eggs of birds of prey, such as the kestrel, infertile. This may cause a large decrease in the population of kestrels.

Predict and explain the possible effects this could have on populations of stoats and rabbits in the food web, Fig. 5.1.

stoats .....

.....

.....

rabbits .....

.....

..... [4]

(c) About 20 years ago a failure at a nuclear plant resulted in the release of radioactive material into the atmosphere. The radioactive material was deposited on grasslands over parts of Europe. Some of the radioactive chemicals got into organisms in the food web, Fig. 5.1. Not all of these radioactive chemicals taken in by organisms are excreted.

(i) Suggest which organism would have accumulated the highest concentration of radioactive chemicals and explain why this would happen.

organism .....

explanation .....

.....

..... [3]

(ii) One of the radioactive chemicals present was strontium, which behaves very much like calcium in an animal's body. Suggest where this strontium would be found in high levels in an animal's body.

.....

..... [1]

[Total: 12]

6 Fig. 6.1 shows a section through a leaf.

For Examiner's Use

Fig. 6.1

(a) Name the parts of the leaf labelled **A** and **B**.

A .....

B ..... [2]

(b) One function of a leaf is gaseous exchange.

(i) Name the process by which gases move in or out of a leaf.

..... [1]

(ii) On Fig. 6.1 label the stoma.

[1]

(iii) Complete Table 6.1 by placing a tick (✓) in the appropriate column to show the movement of gases or vapour through open stomata on a sunny, dry day. Give a reason for each of your answers.

Table 6.1

	movement of gas or vapour			reason for movement of gas or vapour
	into leaf	out of leaf	none	
carbon dioxide				
oxygen				
water vapour				

[3]

(iv) Suggest how the movement of water vapour might be different if it was raining.

..... [1]

(c) The vascular bundle delivers water to replace water lost by the leaf. On Fig. 6.1 name and label the tissue in the vascular bundle that does this.

[2]

[Total: 10]

[Turn over

For Examiner's Use

7 **(a)** Describe how alcohol is produced by respiration of microorganisms during brewing.

.....

.....

.....

..... [3]

(b) Describe the possible effects that alcohol has on the human body.

.....

.....

.....

..... [3]

[Total: 6]

For Examiner's Use

8 **(a)** Fig. 8.1 shows a section through the heart.

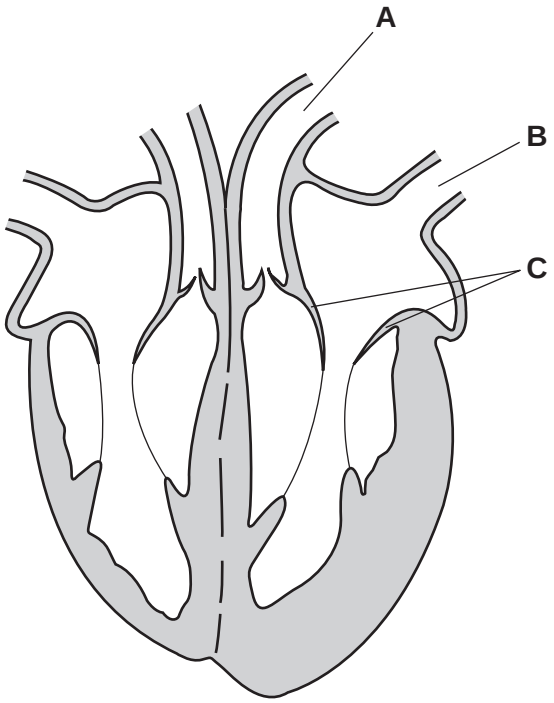

Fig. 8.1

(i) Name the two blood vessels labelled **A** and **B**.

A .....

B ..... [2]

(ii) Name valve **C** and state its function.

name .....

function .....

..... [2]

(b) Fig. 8.2 shows the volume of oxygenated blood pumped out of the left ventricle per minute when the body is at rest and during exercise.

For Examiner's Use

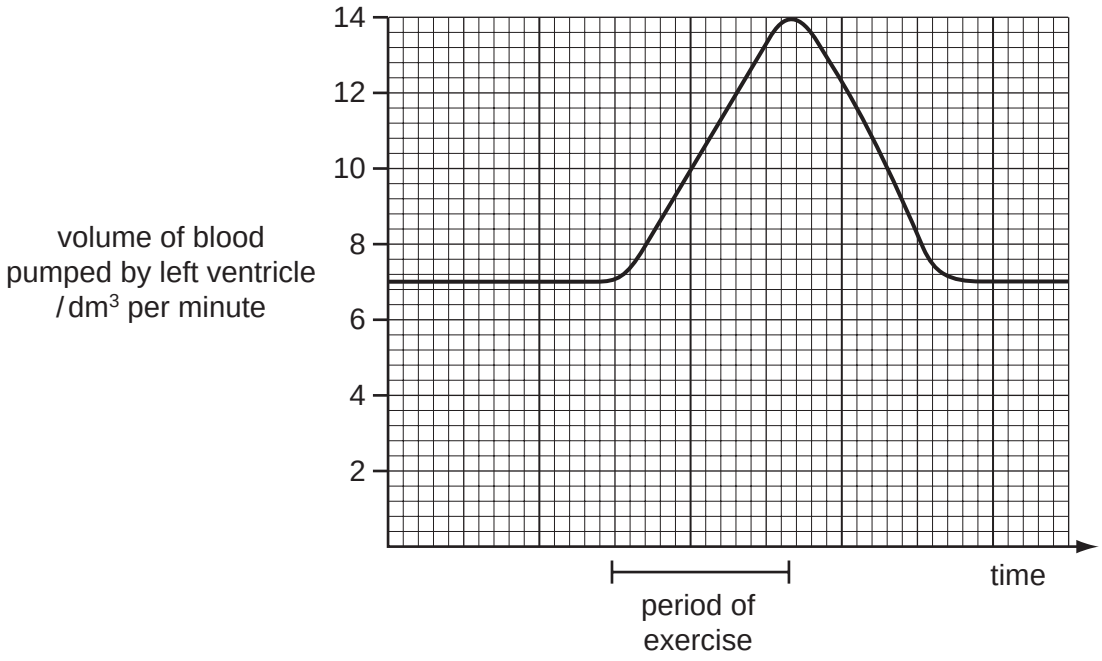

Fig. 8.2

(i) What is the maximum increase in the volume of blood pumped out of the left ventricle during exercise?

..... [1]

(ii) Explain the advantages of this increased flow of blood during exercise.

.....

.....

.....

.....

..... [4]

(c) Fig. 8.3 shows an external view of the heart.

For Examiner's Use

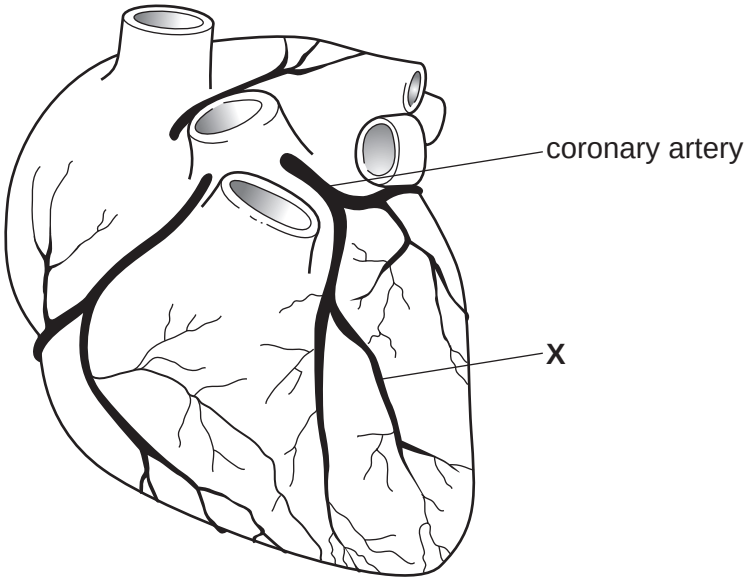

Fig. 8.3

(i) If the coronary artery becomes blocked at **X**, suggest what the effect would be on the heart.

.....

.....

..... [2]

(ii) State two ways in which the risk of such a blockage could be reduced.

1. .....

.....

2. .....

..... [2]

[Total: 13]

9 Fig. 9.1 shows the digestive system.

For Examiner's Use

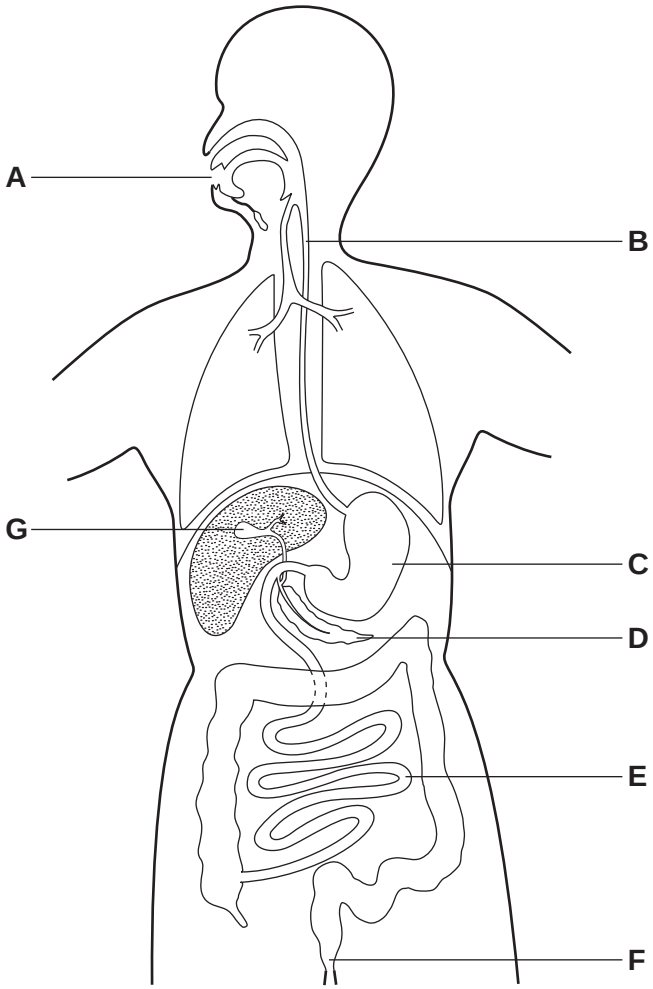

Fig. 9.1

For Examiner's Use

(a) Complete the following statements by selecting the appropriate letter from Fig. 9.1.

(i) Egestion happens at ..... [1]

(ii) Pancreatic juice is formed at ..... [1]

(iii) Villi are present at ..... [1]

(iv) Bile is stored at ..... [1]

(b) The stomach produces hydrochloric acid as well as enzymes. State two functions of this acid in the stomach.

1 .....

.....

2 .....

..... [2]

(c) Describe the roles of the liver in digestion and assimilation.

.....

.....

.....

..... [3]

[Total: 9]

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