Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						6	1	1	2	/	0	1	Signature	

Paper Reference(s)

6112/01

Edexcel GCE

Biology (Human)

Advanced Subsidiary

Unit Test 2H

Monday 4 June 2007 – Morning

Time: 1 hour

Examiner's use only

Team Leader's use only

Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
7	
8	
Total	

Materials required for examination
Ruler

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initial(s) and signature.
The paper reference is shown above.
Check that you have the correct question paper.
Answer ALL EIGHT questions in the spaces provided in this booklet.
Show all the steps in any calculations and state the units. Calculators may be used.
Include diagrams in your answers where these are helpful.

Information for Candidates

The marks for individual questions and parts of questions are shown in round brackets: e.g. **(2)**.
The total mark for this paper is 60.

Advice to Candidates

You will be assessed on your ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking account of your use of grammar, punctuation and spelling.

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Answer ALL questions in the spaces provided.

1. Read through the following passage on digestion of carbohydrates, then complete the passage by writing the most appropriate word or words in the spaces provided.

Digestion of carbohydrates begins in the mouth. Saliva, secreted by the ....., contains the enzyme ....., which begins the digestion of starch.

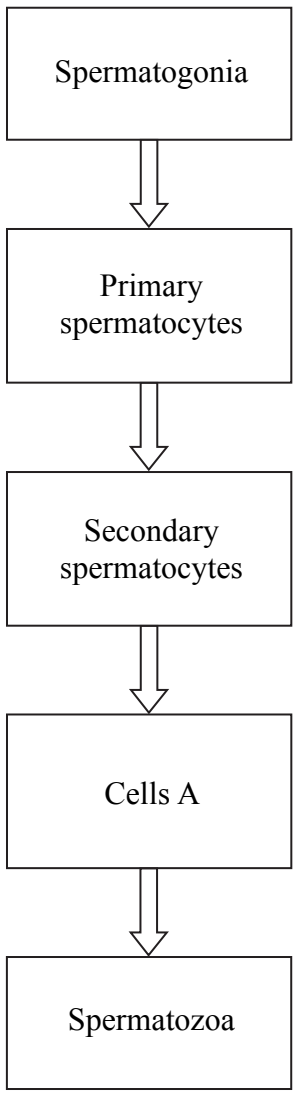
Disaccharides, such as sucrose, are digested in the small intestine by enzymes secreted by the ..... Digestion of sucrose results in the formation of the monosaccharides ..... and .....

(Total 5 marks)

Q1

Leave blank

2. (a) The diagram below shows some of the stages and cells involved in the process of spermatogenesis.



(i) Name **Cells A** shown in the diagram above.

.....

(1)

(ii) State which of the cells named in the diagram are **diploid** (2n).

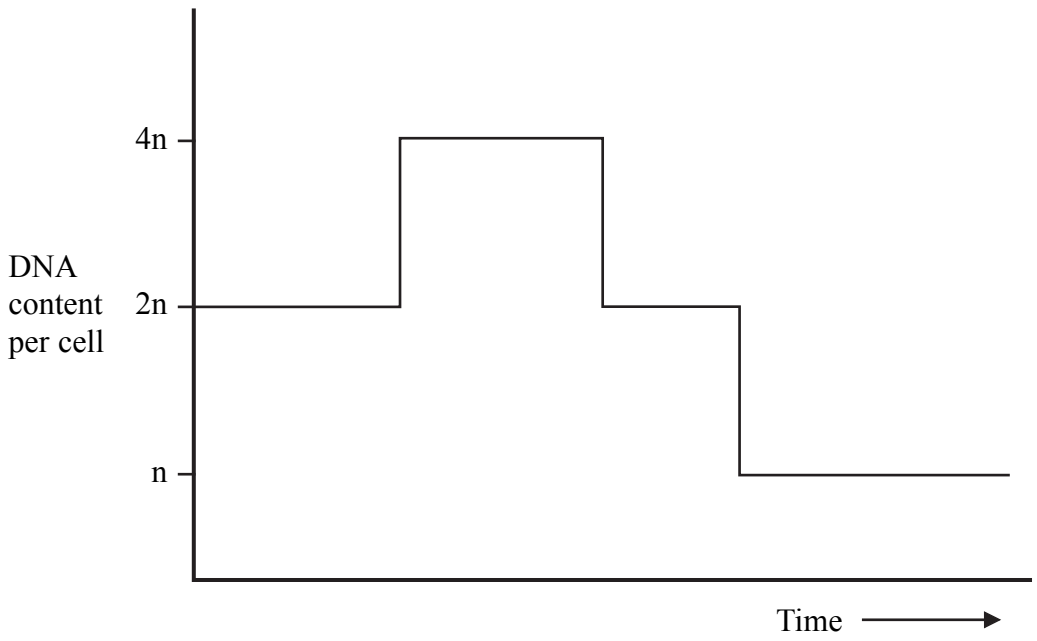
.....

.....

(2)

Leave blank

(b) The graph below shows the changes in the DNA content of cells in the testes, during the formation of spermatozoa.



Name the type of nuclear division shown by the graph and explain why it is important to reduce the DNA content from diploid (2n) to haploid (n), during the formation of spermatozoa.

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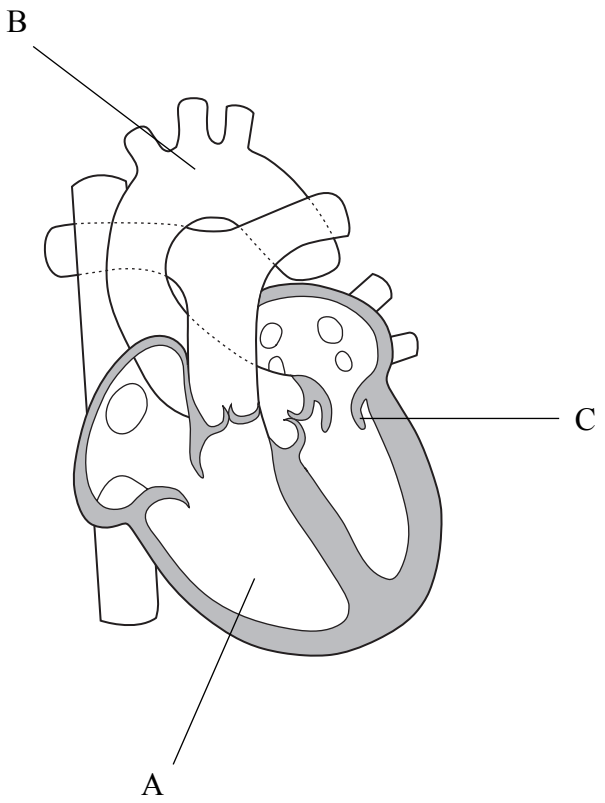
(3)

(Total 6 marks)

Q2

Leave blank

3. (a) The diagram below shows the structure of a heart and associated blood vessels from a mammal.



Name the parts labelled A, B and C.

A .....

B .....

C .....

(3)

Leave blank

(b) Explain what is meant by the term **cardiac cycle**.

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(3)

(c) Heart muscle is described as myogenic. Explain what is meant by the term **myogenic**.

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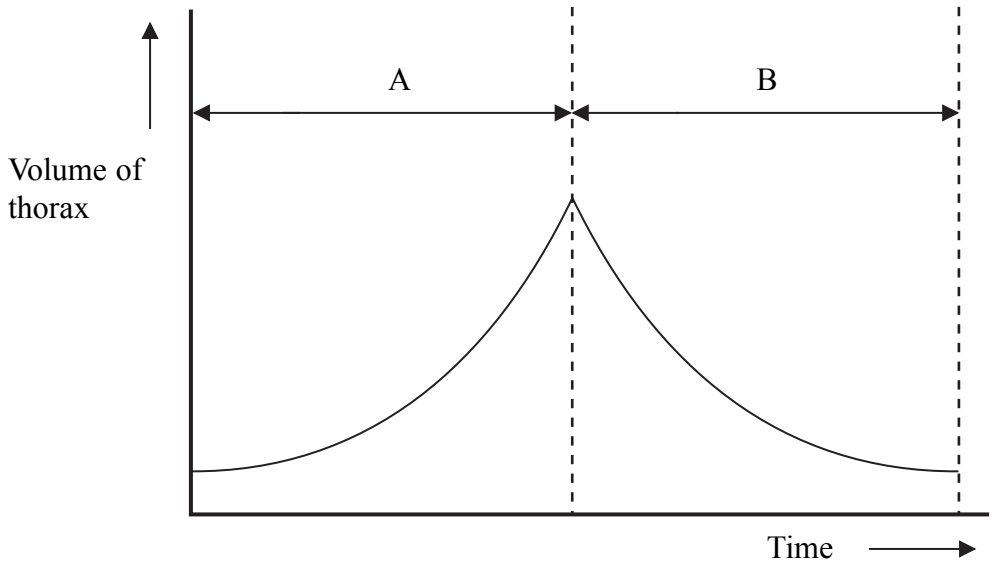
(2)

Q3

(Total 8 marks)

Leave blank

4. The graph below shows changes in the volume of the thorax during one breath.



(a) State which time period, A or B, represents inspiration.

.....

(1)

(b) Explain how the change in volume of the thorax, during **time period A**, is brought about.

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(4)

Leave blank

(c) Suggest **two** factors that would result in a greater rate and depth of breathing.

1 .....

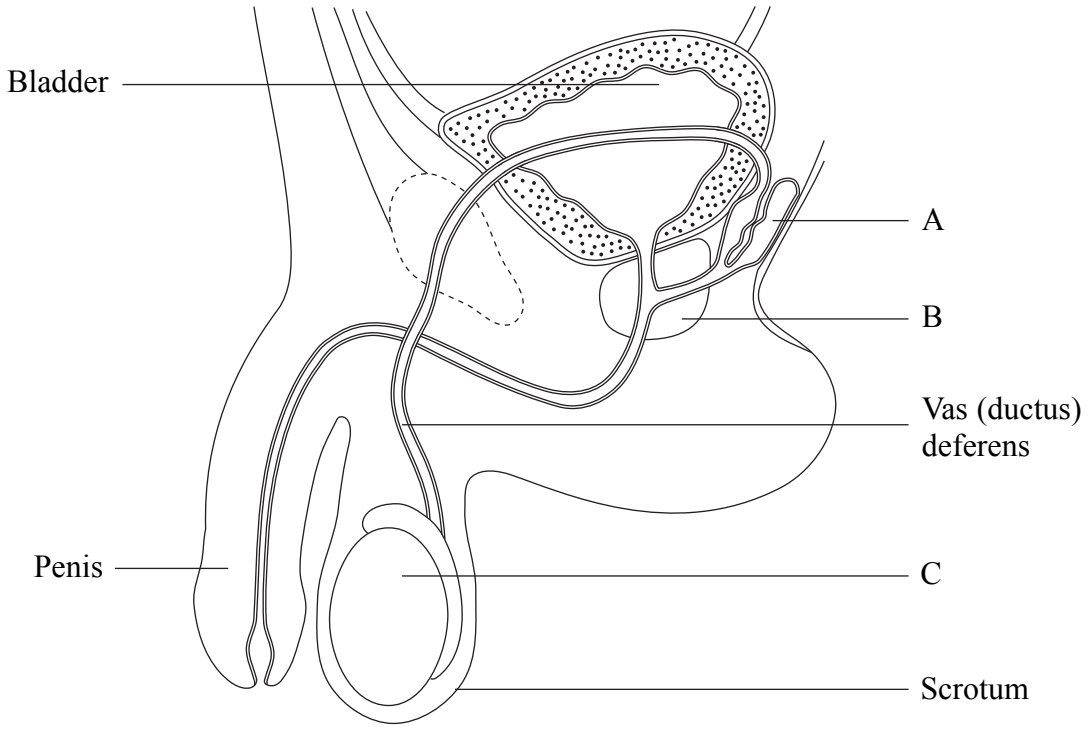
2 .....

(2) **Q4**

(Total 7 marks)

Leave blank

5. The diagram below shows the structure of the reproductive system of a human male, as seen in side view.



(a) Name the **glands** labelled A and B, and the part labelled C.

A .....

B .....

C .....

(3)

(b) The secretions from glands A and B both contribute to the formation of semen. Semen contains fructose and mucus. Suggest a function for each of these components.

Fructose .....

.....

.....

Mucus .....

.....

.....

(2)

Leave blank

(c) A recent study suggested that men who regularly use a lap-top computer have a risk of a reduced sperm count.

(i) Suggest an explanation for the reduced sperm count.

.....

.....

(1)

(ii) Suggest **one** possible consequence of a reduced sperm count.

.....

.....

(1)

Q5

(Total 7 marks)

Leave blank

6. (a) Explain what is meant by the term **acclimatisation**.

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.....

(2)

(b) In the Andes, people live and work at altitudes of up to 4000 m above sea level. Suggest and explain **three** ways in which the circulatory system of these people may be adapted to cope with living at such a high altitude.

1 .....

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2 .....

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3 .....

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(6) **Q6**

(Total 8 marks)

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7. (a) Explain how sweat glands are involved in the regulation of body temperature in humans.

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(3)

(b) The table below shows the skin temperatures and internal heat production of Inuits (people who are adapted to living in a very cold environment) and Europeans.

Skin temperature / °C	Internal heat production / kJ m^{-2} h^{-1}	
	Inuits	Europeans
33	220	172
32	228	188
31	240	200
30	250	215
29	260	230

(i) Describe the relationship between skin temperature and the internal heat production for the Inuits.

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(2)

Leave blank

(ii) Compare the relationship between the internal heat production and skin temperature of the Inuits with the Europeans.

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(3)

(iii) Using the information in the table, suggest how Inuits are adapted to living in a very cold environment.

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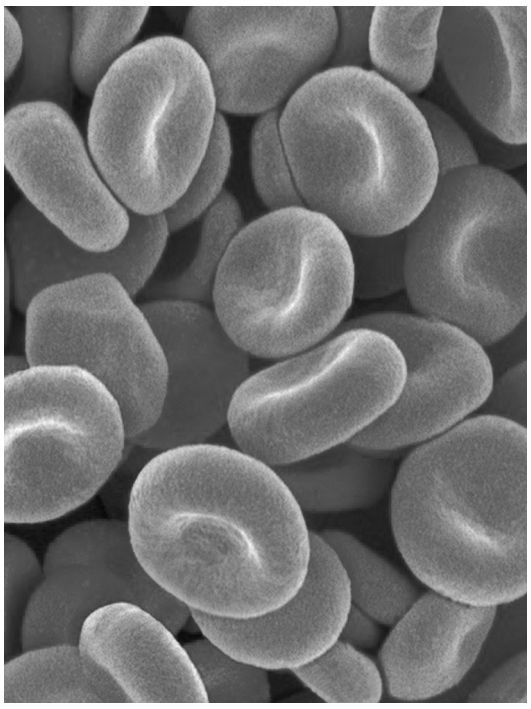
(2)

Q7

(Total 10 marks)

Leave blank

8. The photograph below shows red blood cells as seen using an electron microscope.



Magnification ×3400

Susumu Nishingaga, *Science Photo Library*

(a) Red blood cells transport oxygen from the lungs to all the cells of the body. Describe and explain **two** ways in which these cells are adapted to take up and transport oxygen.

1 .....

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2 .....

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(4)

Leave blank

(b) Red blood cells are also involved in the transport of **carbon dioxide**. Describe the role of red blood cells in the transport of carbon dioxide.

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(5) **Q8**

(Total 9 marks)

TOTAL FOR PAPER: 60 MARKS

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