



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

CANDIDATE  
NAME

CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**Biology**

0610/05

Paper 5 Practical Test

May/June 2009

1 hour

Candidates answer on the Question Paper.

Additional Materials: As listed in the Confidential Instructions.

**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 **both** 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	
<b>Total</b>	

This document consists of 9 printed pages and 3 blank pages.



Read the whole question before starting work.

You are provided two specimens, **S1** (onion) and **S2** (potato).

1 (a) Make a labelled drawing of the cut surface of **S1**.

[6]

(b) (i) State **one** visible similarity between **S1** and **S2**.

.....  
.....

[1]

(ii) State **two** visible differences between **S1** and **S2**.

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

[2]

(c) Test samples of **S1** and **S2** for starch, using the following procedure:

- Cut a piece of **S1** that is approximately 1 cm<sup>3</sup>.
- Chop and crush this sample using the tools provided.
- Fill one test-tube half full of water. Label this tube **S1a**. Add the crushed sample of **S1** to this tube.
- Shake the test tube **S1a** well to mix the sample. Let the pieces of solid settle.
- Label another test-tube **S1b**.
- Pour half of the liquid of test-tube **S1a** into test-tube **S1b**. Leave the solid pieces in test-tube **S1a**.
- Test the contents of **S1a**, for starch using the iodine solution provided.

(i) Record your observation of **S1** in Table 1.1. [1]

- Using clean test-tubes labelled **S2a** and **S2b**, repeat the procedure in (c) with **S2**.

(ii) Record your observations of **S2** in Table 1.1 on page 4. [1]

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- (d) (i) Describe how you would carry out a test for reducing sugar.  
Include all the safety precautions that you would take while carrying out this test.

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.....

.....

[4]

**At this stage you will need to attract the attention of your Supervisor by raising your hand. The Supervisor will fill the empty container with hot water.**

- Test the contents of the two tubes labelled **S1b** and **S2b**, for reducing sugar.

- (ii) Record your observations in Table 1.1.

**Table 1.1**

test	observations	
	<b>S1</b>	<b>S2</b>
starch		
reducing sugar		

[2]

- (e) State the conclusions you could make about the specimens **S1** and **S2** from your observations from the food tests and the structure of **S1** and **S2**.

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*Food tests*

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

*Structure*

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

[4]

[Total 21]

2 As the heart pumps around the human body, a pulse may be felt at certain sites, such as the one shown in Fig. 2.1.

(a) (i) Label on Fig. 2.1, **one** other site where a pulse may be felt.

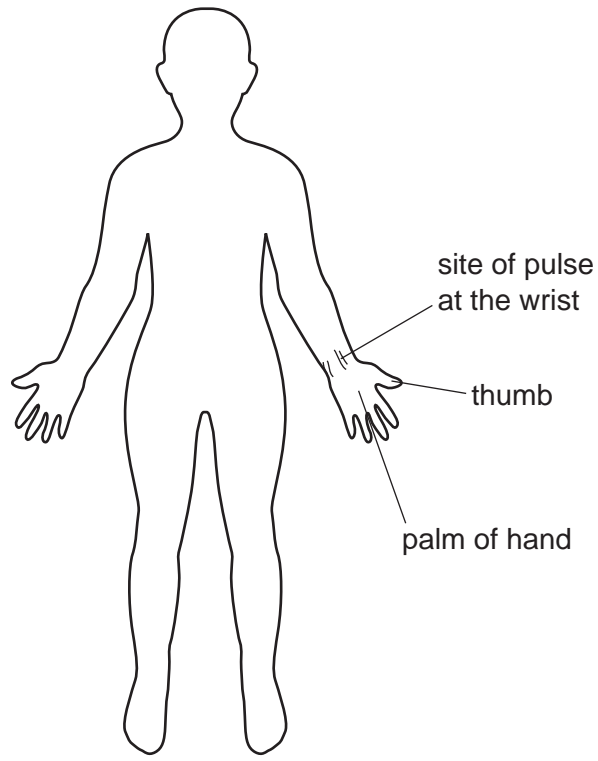


Fig. 2.1

[1]

(ii) Suggest why it is possible to feel the pulse at these sites.

.....

..... [2]

**(b) (i)** Measure your pulse rate at the wrist as shown in Fig.2.1.

- Using one or two of your fingers (not your thumb) to apply gentle pressure to the pulse site at the wrist.
- Count the pulse using the second hand of the clock for 15 seconds.
- Record this in Table 2.1.
- Repeat this procedure twice more and record the results in Table 2.1.
- Multiply by four to obtain the pulses per minute and record in Table 2.1.
- Calculate the mean pulses per minute and record in Table 2.1.

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**Table 2.1**

attempt	pulses per 15 seconds	pulses per minute
1		
2		
3		
mean		

[4]

**(ii)** Explain why it is advisable to repeat readings at least three times.

.....  
 .....

[1]

- (iii) State two factors that may affect heart rate. For each factor explain its effect on heart rate.

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factor	explanation
<b>1</b> ..... ..... .....	..... ..... .....
<b>2</b> ..... ..... .....	..... ..... .....

[4]

- (c) Body mass and heart rates for a number of different mammals are shown in Table 2.2.

**Table 2.2**

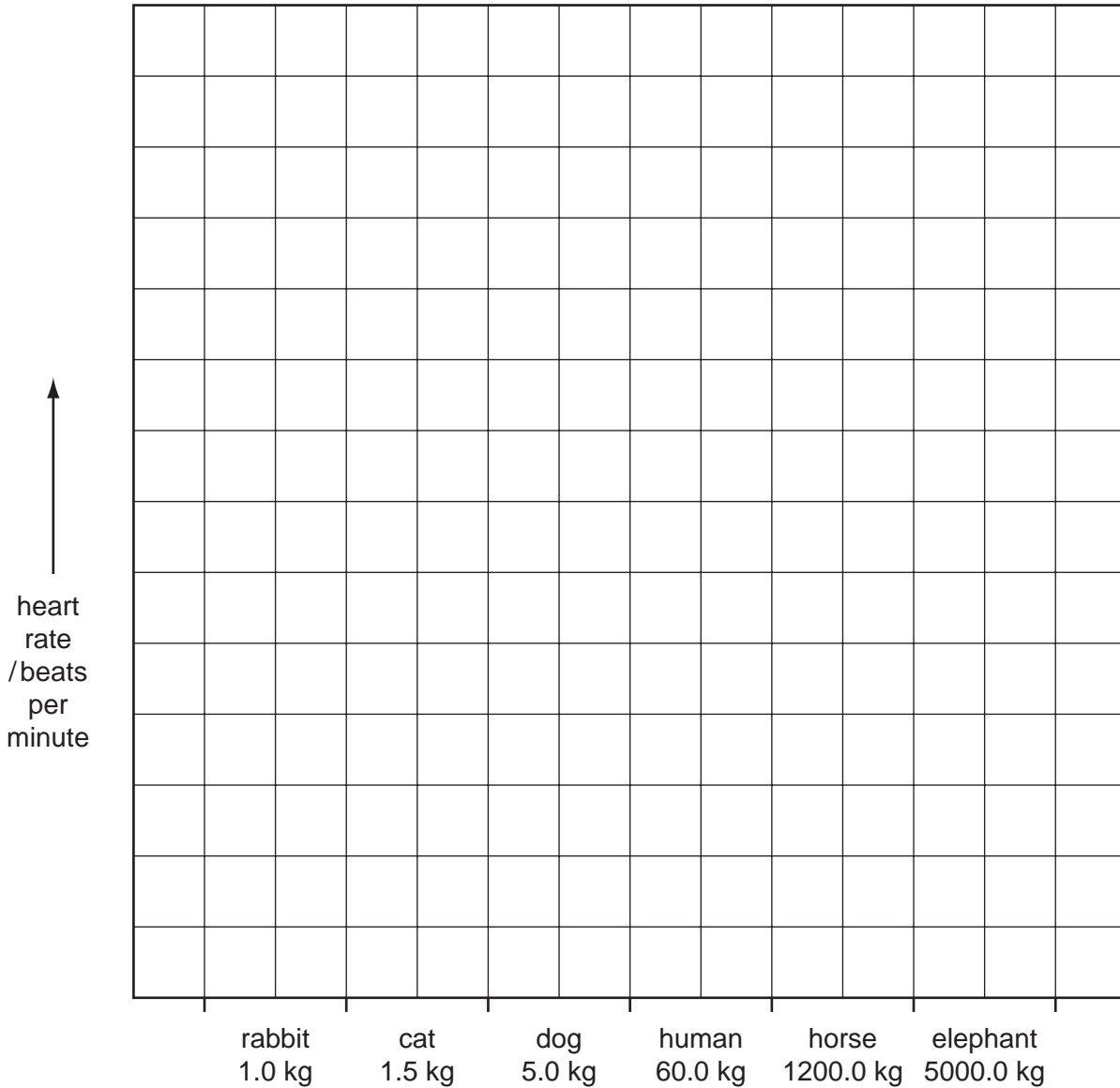
mammal	body mass / kg	heart rate / beats per minute
rabbit	1.0	200
cat	1.5	150
dog	5.0	90
human	60.0	
horse	1200.0	44
elephant	5000.0	30

- Copy your mean pulse rate (from Table 2.1) into Table 2.2.



(i) Plot the data in a bar chart to show heart rate for all six mammals.

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Use



[5]

(ii) Describe the general trend shown by this data plotted on the bar chart.

.....  
 .....

[1]

(d) An elephant can live for 70 years, a cat for 15 years and a rabbit for 9 years.

Suggest how heart rate and body mass might affect life expectancy of mammals.

.....

[1]

[Total: 19]

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