



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

CANDIDATE  
NAME

CENTRE  
NUMBER

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**HUMAN AND SOCIAL BIOLOGY**

**5096/23**

Paper 2

**October/November 2010**

**2 hours**

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, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

**Section A**

Answer **all** questions.

Write your answers in the spaces provided on the Question Paper.

You are advised to spend no longer than 1 hour on Section A.

**Section B**

Answer **all** the questions, including questions 8, 9 and 10 **Either** or 10 **Or**.

Write your answers in the spaces provided on the Question Paper.

Write an **E** (for Either) or an **O** (for Or) next to the number 10 in the

Examiner's grid to indicate which question you have answered.

The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use	
1	
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<b>Section A sub-total</b>	
8	
9	
10	
<b>Total</b>	

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



Section A

Answer **all** questions in this section.

Write your answers in the spaces provided.

- 1 Fig. 1.1 represents several different types of molecules in solution, separated by a membrane.

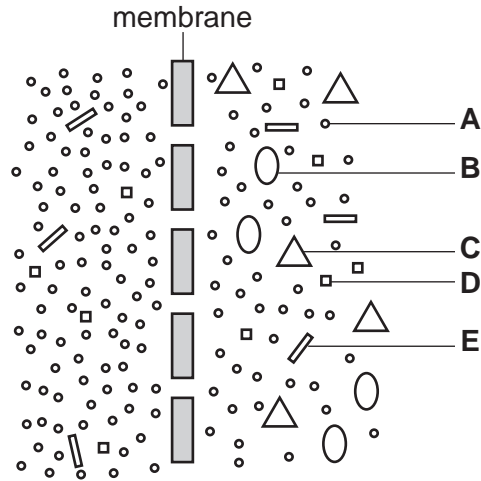


Fig.1.1

- (a) State which letter represents a water molecule. .... [1]  
(b) State the type of membrane shown in Fig. 1.1. .... [1]  
(c) Explain the processes by which molecules move through the membrane.

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..... [6]

Fig. 1.2 shows what happens during filtration in the glomerulus of a kidney.

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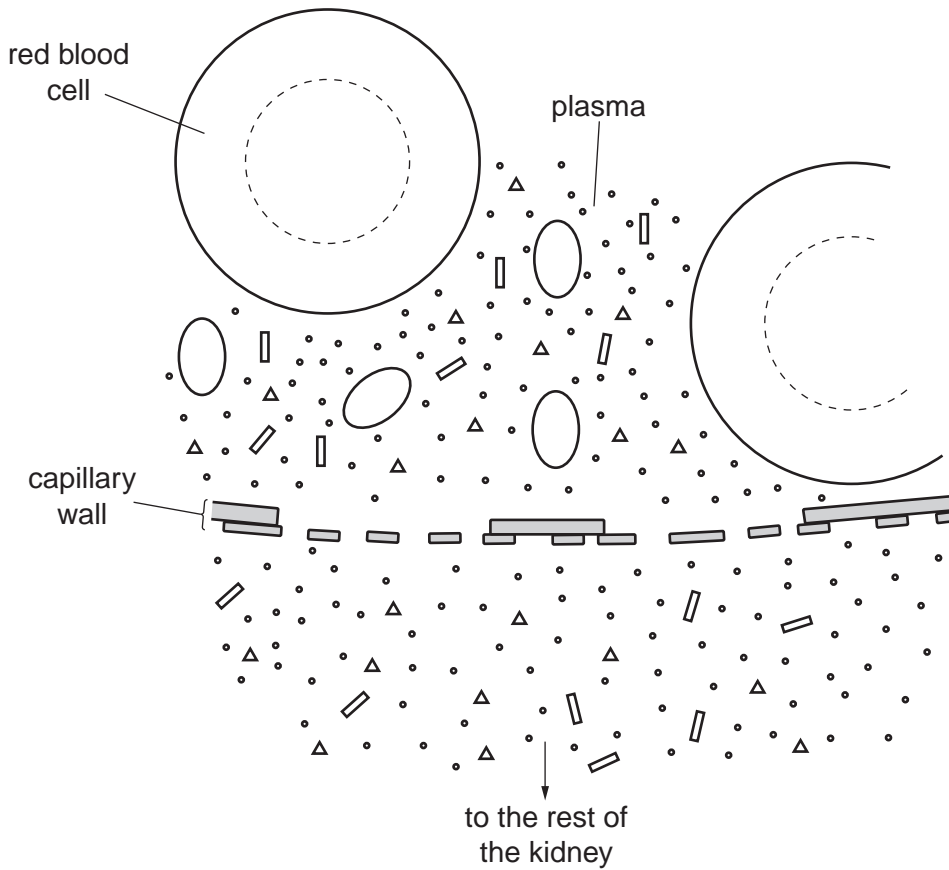


Fig. 1.2

(d) Name the molecules that pass out of the blood plasma.

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..... [4]

(e) Explain how filtration differs from the processes explained in (c).

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..... [3]

(f) Explain what happens to molecules in the filtrate before urine leaves the kidney.

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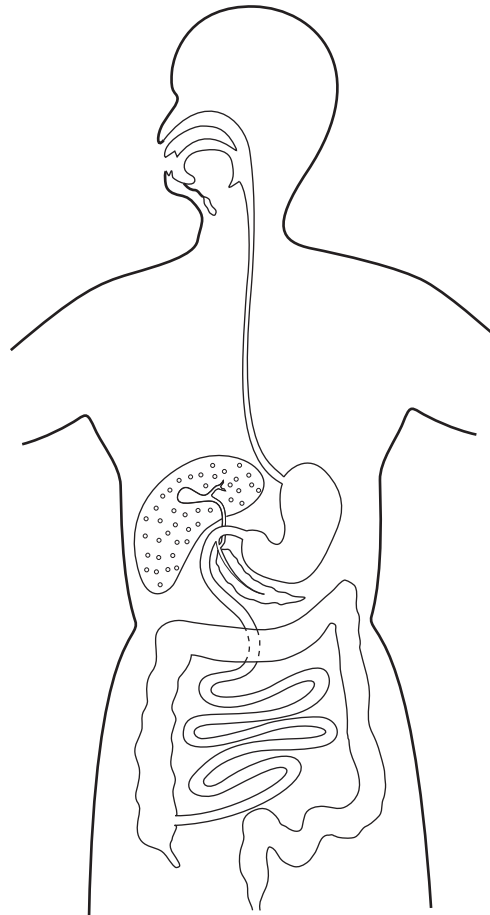
.....

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..... [5]

[Total: 20]

2 Fig. 2.1 shows a person's alimentary canal.



**Fig. 2.1**

- (a) On Fig. 2.1, draw in and label the diaphragm. [1]
- (b) Using a line labelled **X**, show where fat is emulsified. [1]
- (c) Describe the pathway taken by a digested fat molecule from the intestines to the heart.

.....

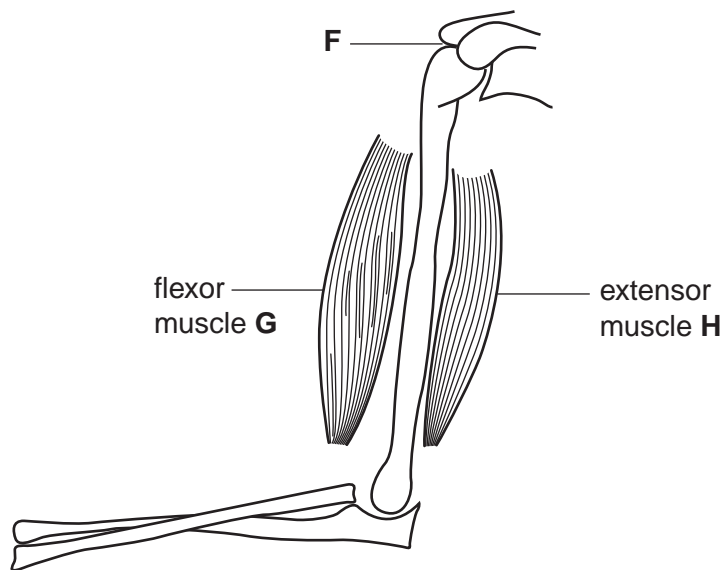
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..... [3]

[Total: 5]

- 3 Fig. 3.1 shows a human forearm and the muscles that bring about its movement.

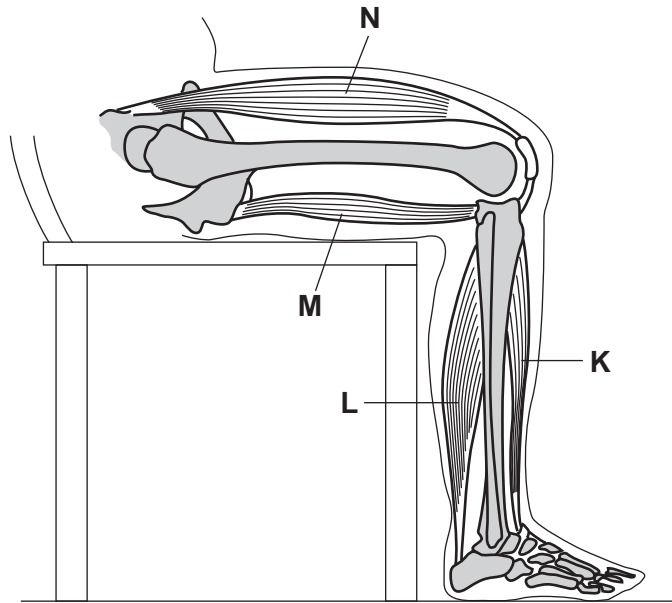


**Fig. 3.1**

- (a) Identify the type of joint found at **F**. ..... [1]
- (b) Draw, on Fig. 3.1, tendons to show
- (i) the insertion of muscle **G**,
- (ii) the origin of muscle **H**. [2]

(c) Fig. 3.2 shows the leg muscles of a person sitting on a chair.

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Examiner's  
Use



**Fig. 3.2**

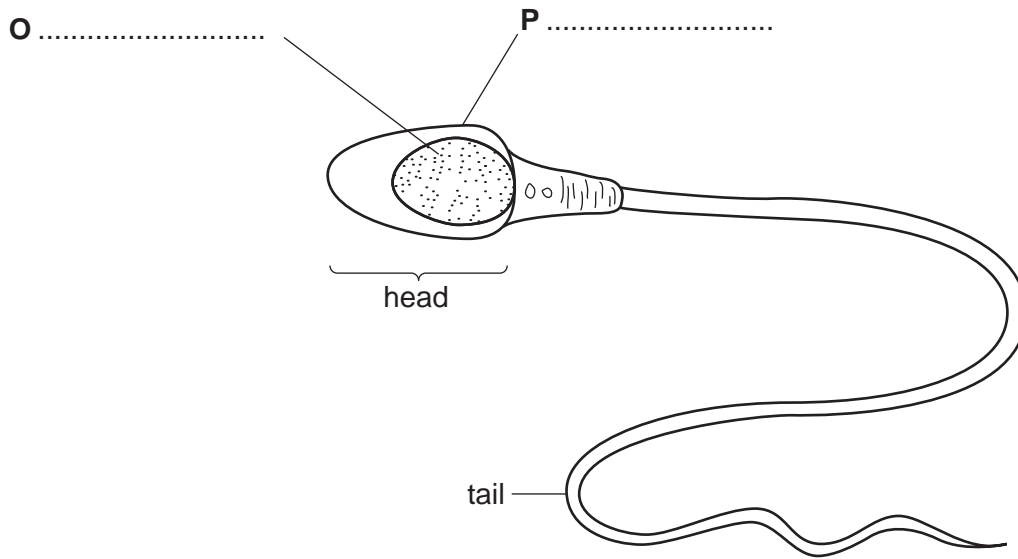
Using the information in Fig. 3.2, suggest which of the muscles, **K**, **L**, **M** or **N** is the flexor for the knee joint. Explain your answer.

*muscle* ..... [1]

*explanation* ..... [1]

[Total: 5]

- 4 Fig. 4.1 shows a human sperm cell.



**Fig. 4.1**

- (a) On Fig. 4.1, label the structures **O** and **P**. [2]

- (b) Explain what is meant by the term *chromosome*.

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

- (c) Using the symbols **X** and **Y**, draw a diagram to show how sex is inherited in humans.

[3]

[Total: 7]



5 The concentration of nitrate ions in the soil was measured before, during and after the growing of a crop. The results are shown in Fig. 5.1.

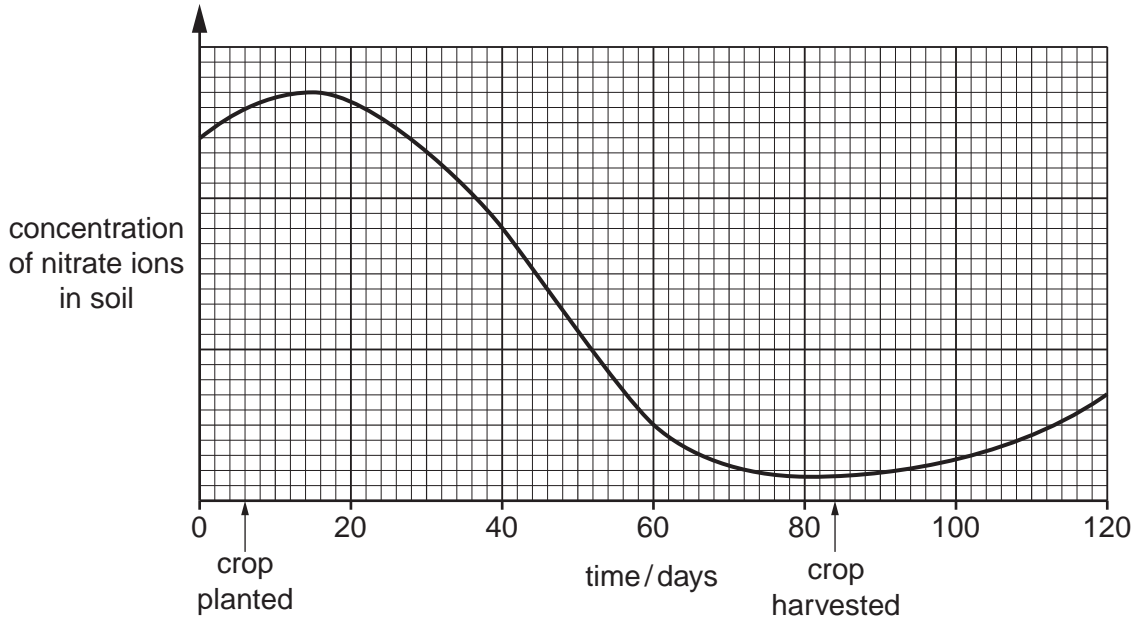


Fig. 5.1

(a) State the name of the nutrient cycle in which nitrate ions are involved.

..... [1]

(b) Outline how nitrate ions are used by the crop plant.

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

(c) Explain what is happening in the soil between time 0 and the planting of the crop to increase the concentration of nitrate ions in the soil.

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..... [4]

[Total: 7]

- 6 The diets of two twelve-year-old girls from two countries in different parts of the world were analysed. The results are shown in Fig. 6.1.



Fig. 6.1

- (a) Using information from Fig. 6.1, complete the table to compare the diet for the girl in country Q with that of the girl in country R. In each box, write *more* or *less* or *the same*.

	meat, eggs, fish	cereals	dairy products	sugars, sweets	vegetables, fruit
diet for girl in country Q					

[1]

- (b) Most of the daily energy intake is provided by carbohydrates and fats. Select **one** of the food groups from Fig. 6.1 that would provide a good source of

(i) carbohydrates, .....

(ii) fats. .... [2]

- (c) Suggest why the girl from country Q is more likely than the girl from country R to suffer from

(i) poor wound healing (scurvy),  
.....  
.....

..... [2]

(ii) constipation.  
.....  
.....

..... [3]

[Total: 8]

7 Fig. 7.1 shows a neurone.

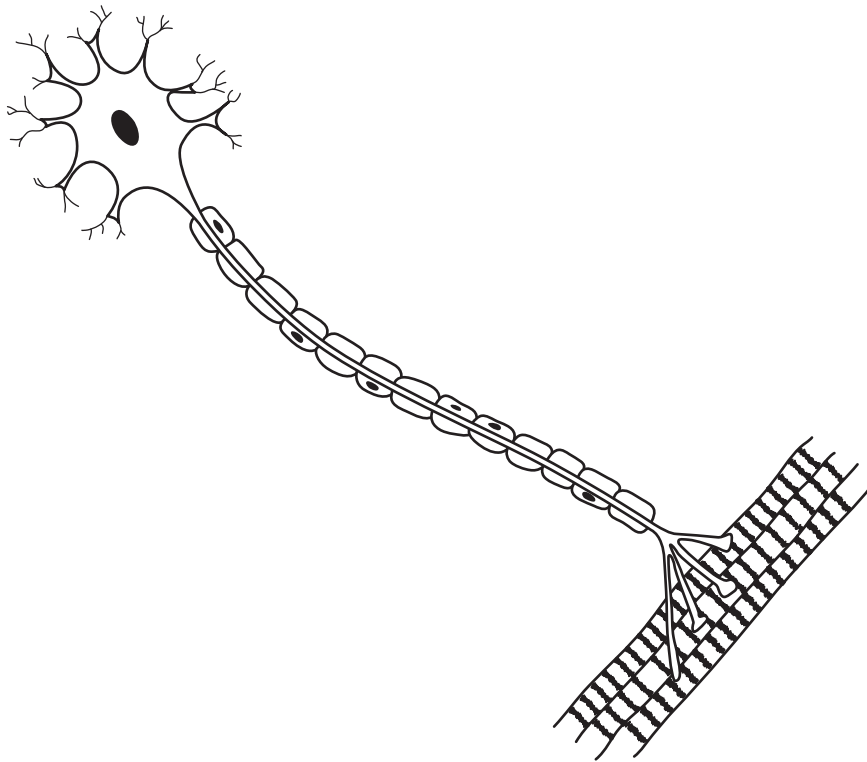


Fig. 7.1

(a) State the difference between a neurone and a nerve.

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

(b) State which type of neurone is shown in Fig. 7.1 and explain your answer.

*type of neurone* .....

*explanation* .....

..... [2]

[Total: 3]



9 (a) Distinguish between *breathing* and *respiration*.

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..... [8]

(b) (i) Describe how mouth-to-mouth resuscitation is carried out.

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(ii) State the circumstances in which mouth-to-mouth resuscitation should be given, and explain its value.

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..... [7]





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