


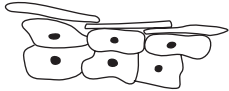
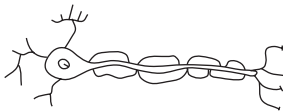




Answer ALL the questions. Write your answers in the spaces provided.

1. Draw a straight line from each type of cell to its function.  
One has been done for you.

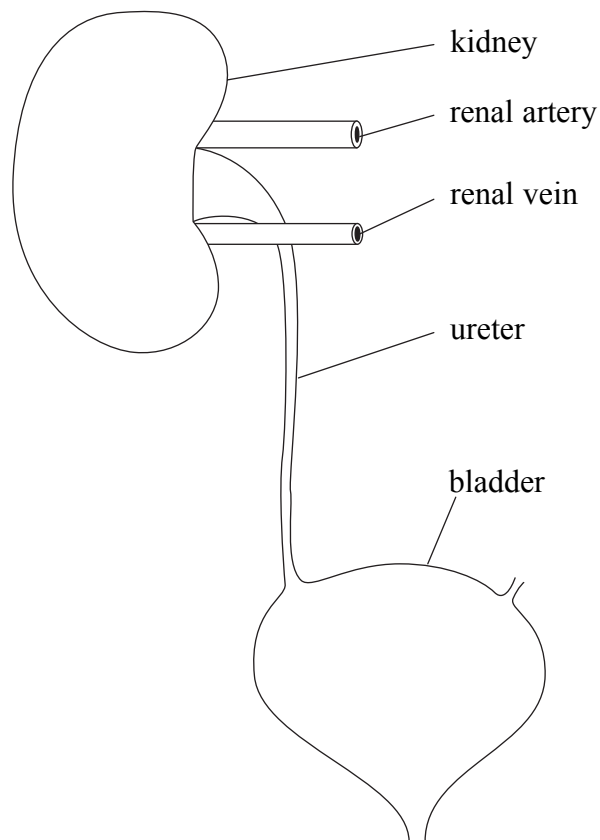
type of cell (diagrams not to scale)	function
 red blood cell	carries oxygen
 white blood cell	forms an outer waterproof layer
 sperm cell	carries an electrical signal (impulse)
 skin cell	kills bacteria
 nerve cell (neurone)	swims to an egg

(Total 4 marks)

Q1



2. The diagram shows part of the urinary system.



(a) Underline the correct words to complete the following sentences.

**kidney.**

- (i) Waste urea is taken out of the blood by the **renal artery.**  
**renal vein.**

(1)

**renal artery.**

- (ii) Urine is carried away from the kidney by the **renal vein.**  
**ureter.**

(1)

**renal vein.**

- (iii) Urine is stored in the **ureter.**  
**bladder.**

(1)

(b) Choose the correct word from the box to complete the following sentence.

**liver      lungs      stomach**

Urea is made in the .....

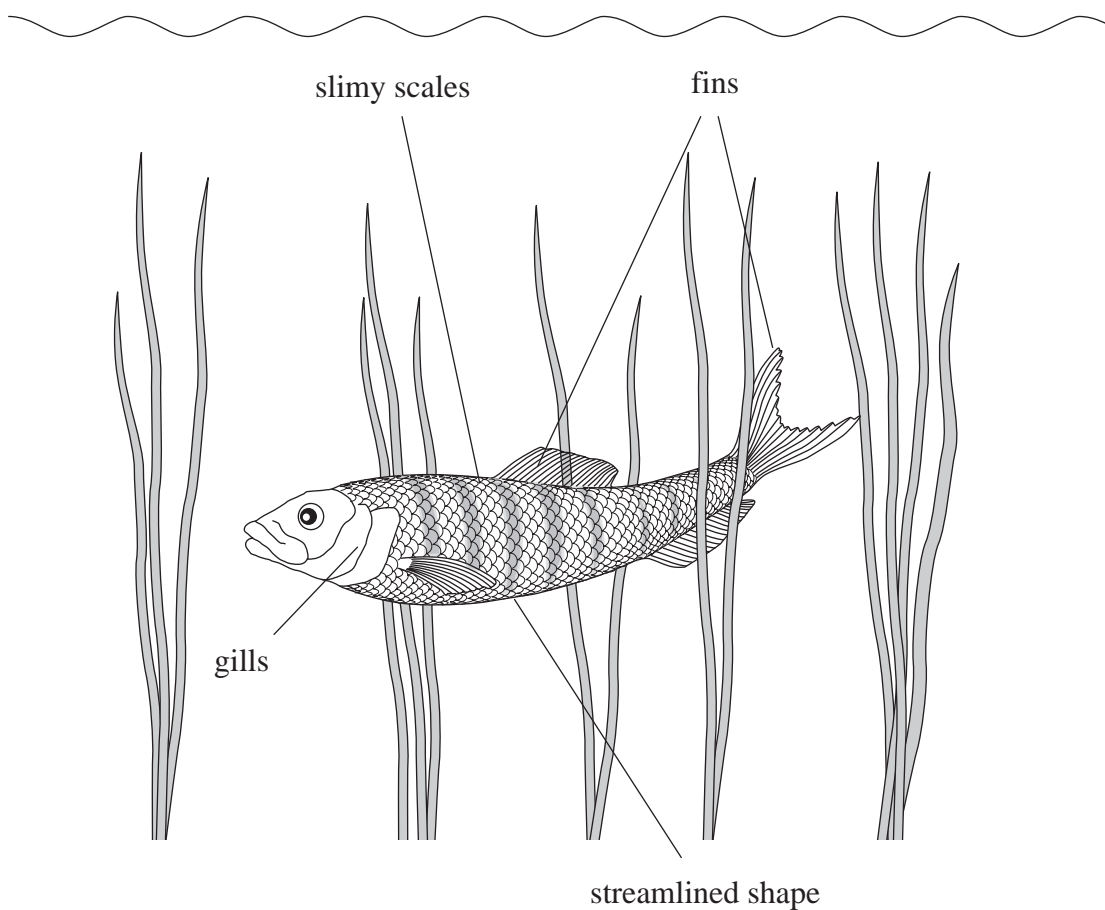
(1)

Q2

(Total 4 marks)



3. Fish have adaptations that help them live in water.



(a) Choose a labelled adaptation and describe how it helps the fish to live in water.

Adaptation .....

This helps the fish to live in water by .....

.....  
(1)

(b) Choose a second labelled adaptation and describe how it helps the fish to live in water.

Adaptation .....

This helps the fish to live in water by .....

.....  
(1)

(c) Suggest how the banding pattern on the skin of the fish might help it survive.

.....  
(1)

(Total 3 marks)

Q3



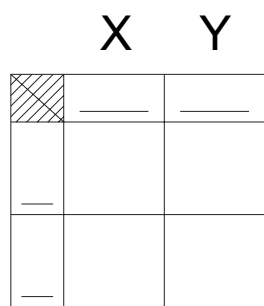
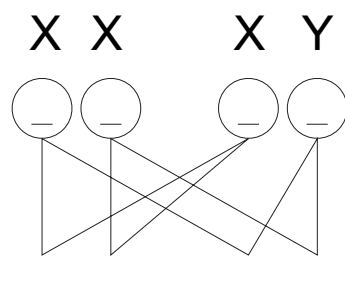
4. (a) The diagram shows Jasmin and Ali and their sex chromosomes.



Complete **one** of the diagrams below to show how the sex of their babies is determined.

**either**

**or**



**(2)**

(b) Jasmin and Ali have two girls.  
What is the chance that their next child will be a boy?

.....  
**(1)**

(c) Choose the correct numbers from the box to complete the following sentences.

- |           |           |           |           |
|-----------|-----------|-----------|-----------|
| <b>23</b> | <b>32</b> | <b>46</b> | <b>64</b> |
|-----------|-----------|-----------|-----------|

(i) A human body cell has ..... chromosomes.

(ii) A human gamete (sex cell) has ..... chromosomes.

**(2)**

(d) A male gamete joins with a female gamete to form a zygote.  
What is the name given to this process?

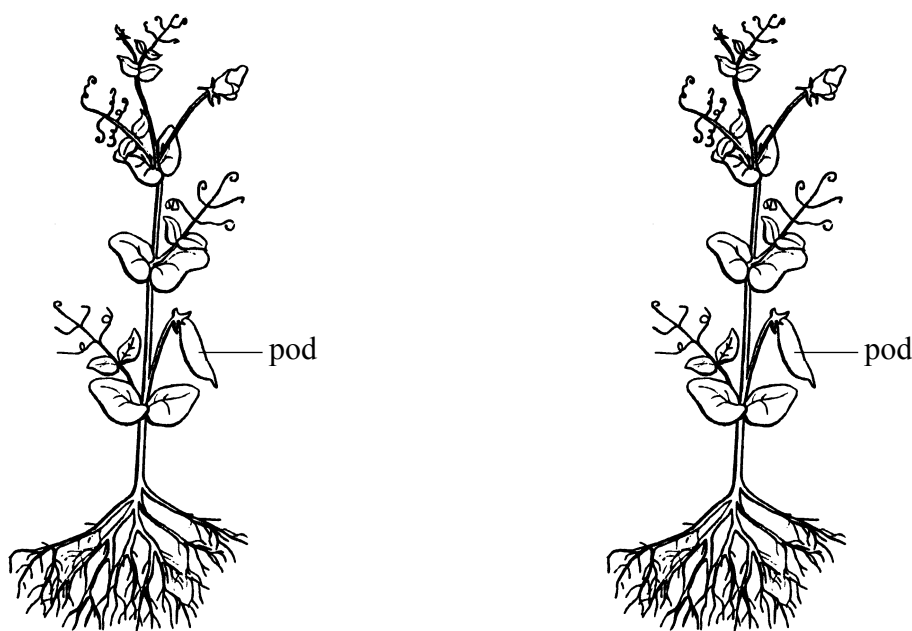
.....  
**(1)**

**(Total 6 marks)**

**Q4**



5. In the nineteenth century Gregor Mendel investigated inheritance in pea plants. He chose parent plants showing certain features and crossed them.



He noted the features shown in the offspring. The table shows some of his results.

feature of parent	appearance of the two parent plants	number of plants produced and their appearance
length of stem (either long or short)	long and long	787 long; 277 short
colour of pods (either green or yellow)	green and green	428 green; 152 yellow

(a) In Mendel's time, many scientists thought that features of offspring were a blend of features from both parents. How do Mendel's results disprove this idea?

.....  
 .....  
 (1)

(b) State **two** reasons why the design of Mendel's experiment produced reliable data from which he could make valid conclusions about inheritance in pea plants.

1 .....

2 .....

(2)



Leave blank

- (c) Mendel's work showed that inheritance was to do with units of information, now called genes.  
Complete the following sentence.

Genes are part of a long chain molecule called ..... (1)

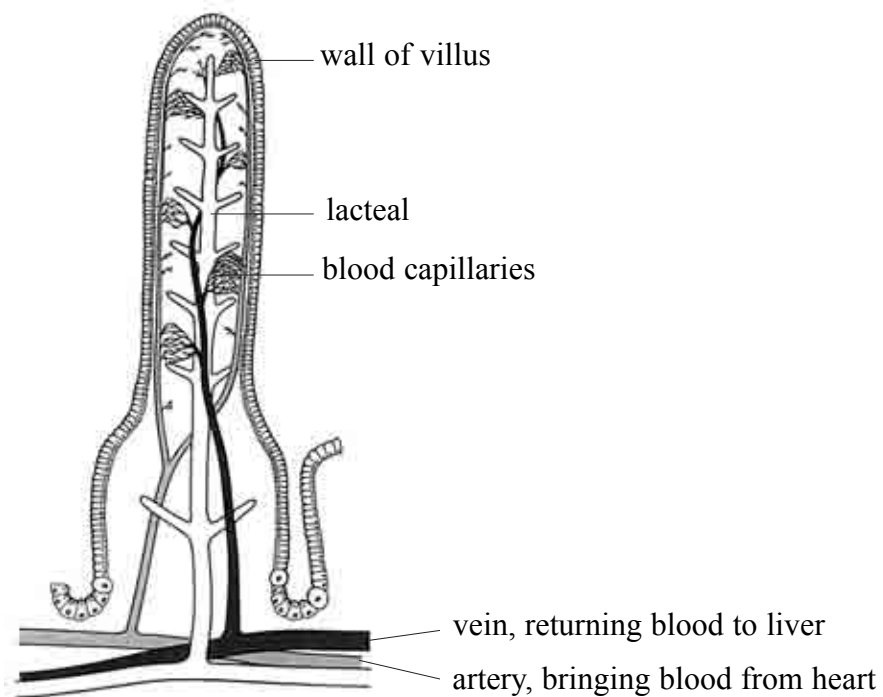
- (d) In the first experiment, the two alleles were for long and short stems.  
What is meant by the term allele?

..... (1)

Q5

(Total 5 marks)

6. The diagram shows a villus from the small intestine.



Explain how the villus is adapted to absorb food.



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

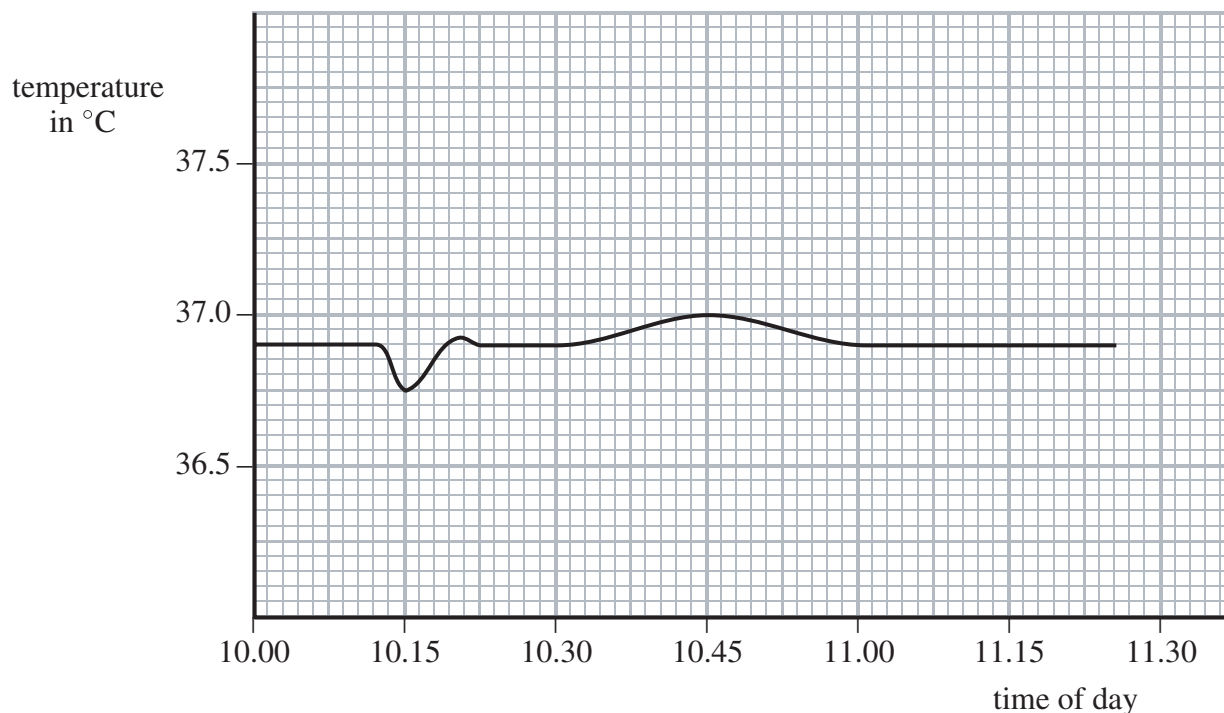
Q6

(Total 4 marks)



Leave blank

7. Jim measured his body temperature during part of one day.



- (a) At 10.15 Jim started to shiver.  
Explain how shivering caused the change in his body temperature over the next few minutes.

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

**(2)**

- (b) (i) At 10.45 Jim was too hot.  
Name one process in Jim's body that could bring down his temperature.

.....

**(1)**

- (ii) State how heat energy is lost from Jim's body in this process.

.....

**(1)**

**(Total 4 marks)**

**Q7**

**TOTAL FOR PAPER: 30 MARKS**

**END**

