



# **KS3 Science**

## **Cells and Cell Functions**

### **Question Paper**

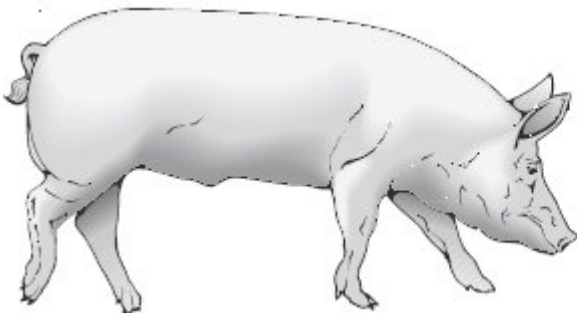
**Time available: 44 minutes**

**Marks available: 62 marks**

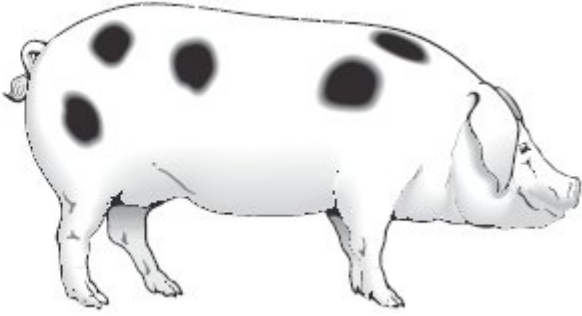
**[www.accesstuition.com](http://www.accesstuition.com)**

1.

The drawings below show pigs from two different breeds.



Tamworth



Gloucester Old Spot

(a) (i) From the drawings above, give **two** ways in which the pigs are different.

1. ....

1 mark

2. ....

1 mark

(ii) What are these differences called?  
Tick the correct box.

adaptations

classification

fertilisation

variations

1 mark

(b) The drawing below shows a piglet bred from a Tamworth and a Gloucester Old Spot.



Give **one** way you can tell that one of its parents is a Tamworth.

.....

1 mark

(c) (i) When pigs reproduce, which **two** types of cell pass information from the pigs to their piglets?

Tick the **two** correct boxes.

blood cell	<input type="checkbox"/>	nerve cell	<input type="checkbox"/>	cheek cell	<input type="checkbox"/>
egg cell	<input type="checkbox"/>	muscle cell	<input type="checkbox"/>	sperm cell	<input type="checkbox"/>

2 marks

(ii) When pigs reproduce, two cells join together.

What is this process called?

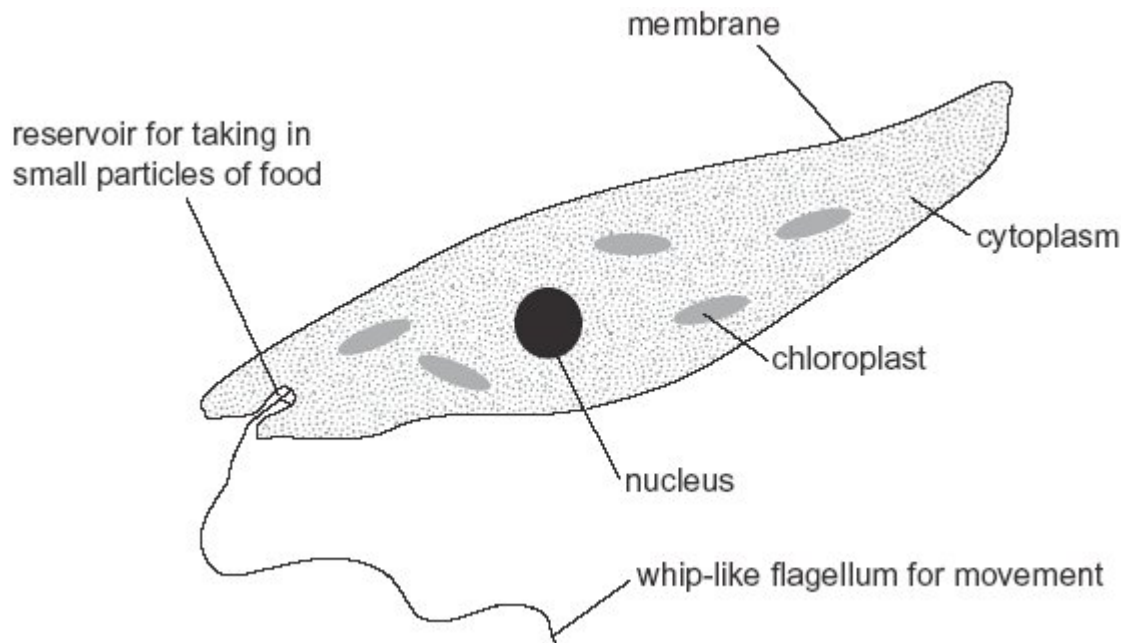
Tick the correct box.

adaptation	<input type="checkbox"/>	classification	<input type="checkbox"/>
fertilisation	<input type="checkbox"/>	variation	<input type="checkbox"/>

1 mark  
maximum 7 marks

2.

The diagram below shows an organism called Euglena. It is made of only one cell. It lives in ponds and streams. Euglena have features of both plants and animals.



(a) Look at the diagram of Euglena.

Give **two** pieces of evidence which suggest it is an **animal** cell and **not** a plant cell.

1. ....

1 mark

2. ....

1 mark

(b) Plant cells can carry out photosynthesis.

How can you tell from the diagram that Euglena can carry out photosynthesis?

.....

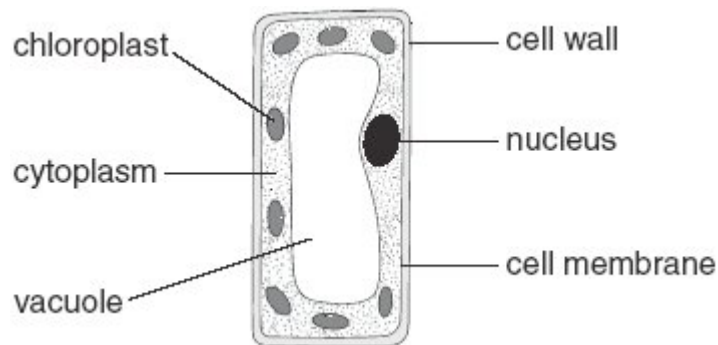
1 mark

(c) Complete the word equation for photosynthesis.

carbon dioxide + ..... → glucose + .....

2 marks  
maximum 5 marks

**3.** The diagram below shows a plant cell.



(a) In which part of a plant would you find this type of cell?

.....

1 mark

(b) (i) Give the function of the nucleus.

.....  
.....

1 mark

(ii) Give the function of the chloroplasts.

.....  
.....

1 mark

(iii) Give the function of the cell wall.

.....  
.....

1 mark

(c) Give the names of **two** labelled parts that are **not** present in animal cells.

1. ....

2. ....

2 marks

(d) Tick **one** box in each row to show whether the statement is true for photosynthesis **or** for respiration.

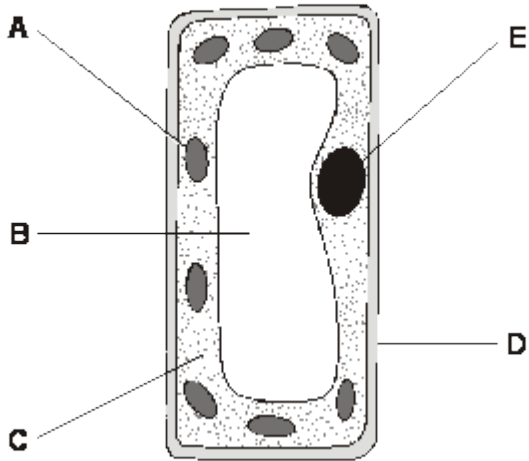
statement	photosynthesis	respiration
carbon dioxide is produced		
light is needed		
it occurs in plants and animals		
oxygen is produced		

2 marks

maximum 8 marks

4.

The diagram shows a plant cell.



(a) Give the name of part A.

.....

Give the function of part A.

.....

.....

2 marks

(b) Give the name of part E.

.....

Give the function of part E.

.....

.....

2 marks

(c) Give the letters of **two** parts that are present in plant cells but **not** in animal cells.

..... and .....

1 mark

(d) How can you tell that the cell in the diagram is from a leaf and **not** from a root?

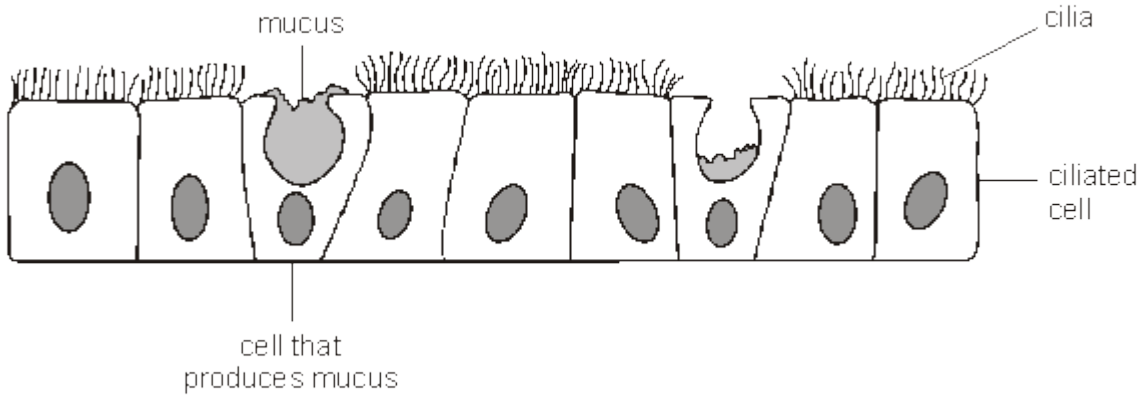
.....

1 mark

maximum 6 marks

5.

(a) The diagram shows two types of cell in the lining of the airway leading to the lungs.



When a person breathes in cigarette smoke, cilia are damaged and much more mucus is produced.  
What will be the consequences of this?

.....

.....

.....

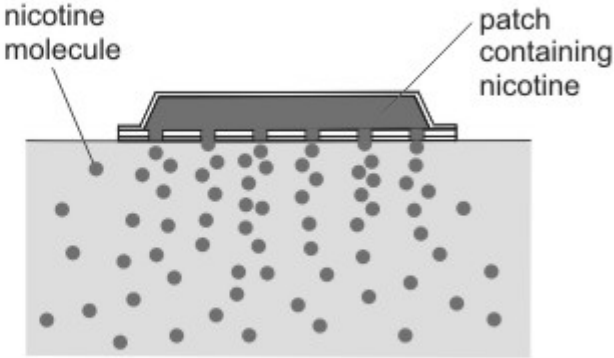
.....

2 marks

(b) Sharna is addicted to smoking and wants to stop.  
Instead of smoking she puts nicotine patches on her skin.



**nicotine patch on Sharna's skin**



**a section through a nicotine patch on Sharna's skin**

The table shows the mass of nicotine in different patches and the number of weeks each type of patch is used over an eight-week period.

mass of nicotine in each patch (mg)	weeks
21	1-4
14	5-6
7	7-8

Use information in the table to describe how this eight-week course of treatment should help to reduce Sharna's addiction to smoking.

.....

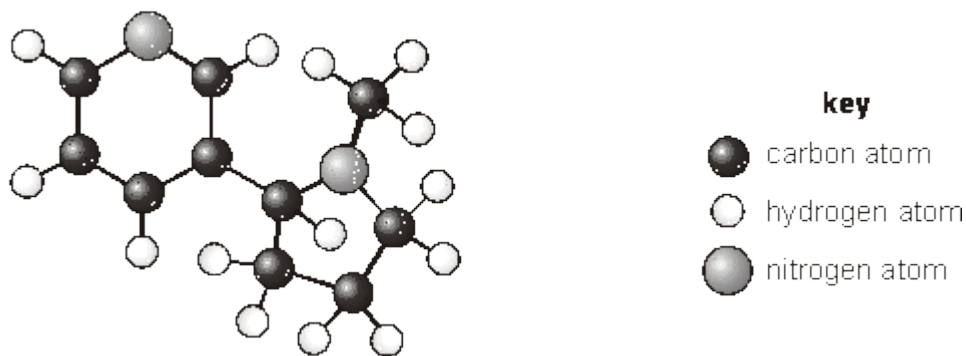
.....

.....

2 marks

(c) The diagram below shows a nicotine molecule.

It contains atoms of three elements



(i) Nicotine is a compound. How does the diagram show this?

.....

.....

1 mark

(ii) When nicotine in a cigarette is burned in air, nitric oxide is formed from the nitrogen in the nicotine.

Look at the elements in nicotine.

Give the names of **two** other compounds formed when nicotine burns in air.

1 .....

2 .....

2 marks  
maximum 7 marks

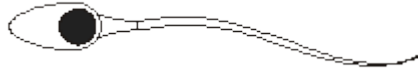


6.

Choose words from the box below to answer **all** the questions.

cell division	digestion	fertilisation	foetus	genes	
intestine	ovary	ovum (egg)	sperm	testis	uterus

(a)



**A**

(i) What is the name of cell A?

.....

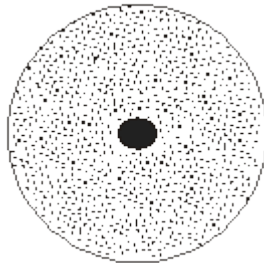
1 mark

(ii) Where is cell A produced?

.....

1 mark

(b)



**B**

(i) What is the name of cell B?

.....

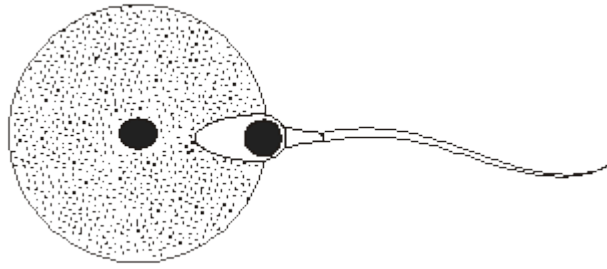
1 mark

(ii) Where is cell B produced?

.....

1 mark

(c)



**C**

*not to scale*

What process is shown in C? Choose your answer from the box above.

.....

1 mark

(d) The diagram shows a baby developing inside its mother.



(i) Which word means an unborn baby? Choose your answer from the box above.

.....

1 mark

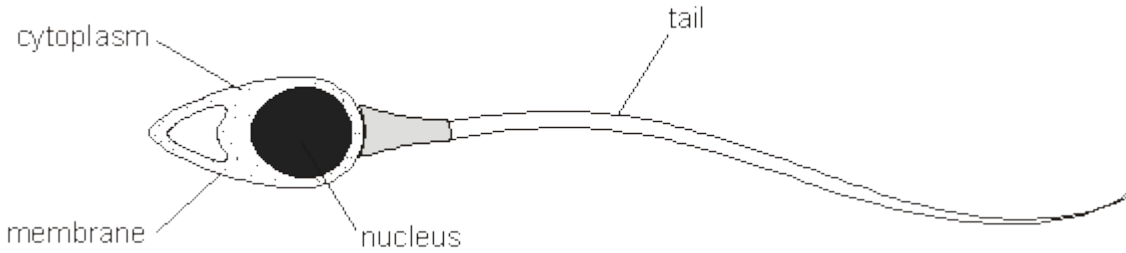
(ii) Where does the unborn baby develop? Choose your answer from the box above.

.....

1 mark  
maximumm 7 marks

7.

(a) The diagram shows a sperm cell. Sperm cells are adapted for fertilisation.



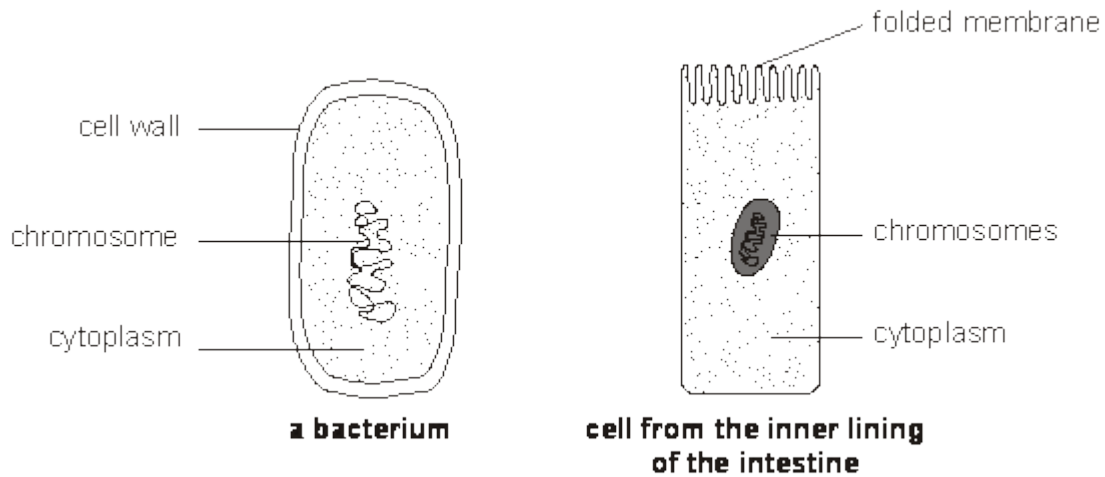
Sperm cells use their tails to swim towards an ovum (egg).  
Give **one** other way the sperm cell is adapted for fertilisation.

.....

.....

1 mark

(b) The diagrams below show two other cells.



*not to scale*

(i) Look at the diagrams above.

What is the difference between the location of the genetic material in the bacterium and in the cell from the lining of the intestine?

.....

.....

.....

1 mark

(ii) What is the function of the genetic material in a cell?

.....

.....

1 mark

(c) Cells in the lining of the intestine are adapted to absorb digested food.

How does the folded membrane of these cells enable them to absorb the maximum amount of digested food?

.....  
.....

1 mark

(d) A group of cells in the lining of the intestine is a tissue.

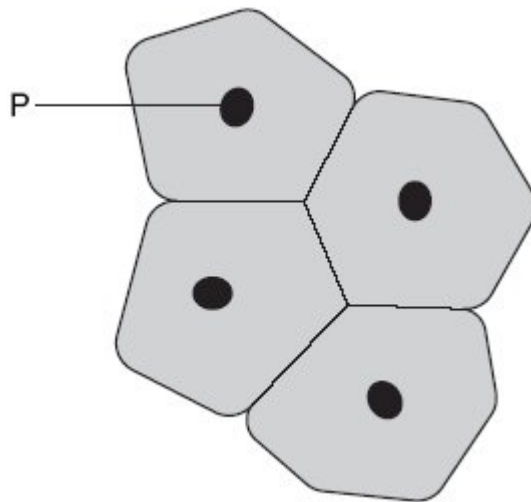
Why is a number of sperm cells **not** a tissue?

.....  
.....

1 mark  
maximum 5 marks

**8.**

(a) The diagram shows a group of cells from the lining of the mouth.



(i) Give the name and function of part P.

name of part P

.....

1 mark

function of part P

.....  
.....

1 mark

- (ii) Which word describes this group of cells?  
Tick the correct box.

compound

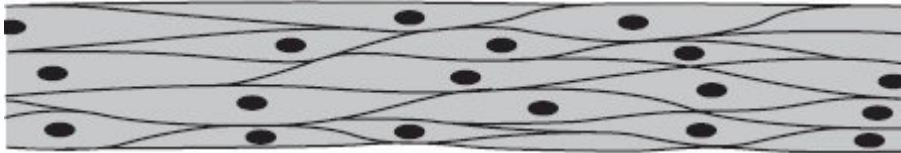
organism

organ

tissue

1 mark

- (b) The diagram below shows muscle cells from the wall of the human intestine.



- (i) Muscle cells can contract.

Give **one** reason why muscles are needed in the intestine.

.....  
.....

1 mark

- (ii) Other cells in the intestine produce enzymes.

What effect do enzymes in the intestine have on nutrients such as protein?

.....  
.....

1 mark

- (iii) Which of the following is required in the diet to keep food moving through the intestine?

Tick the correct box.

fat

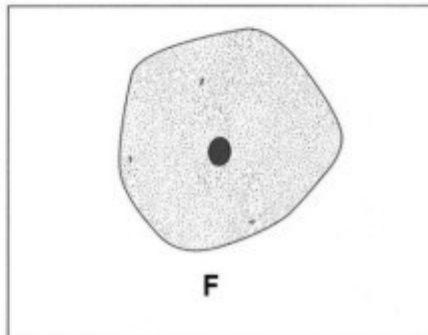
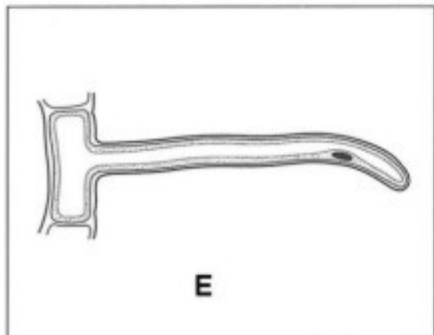
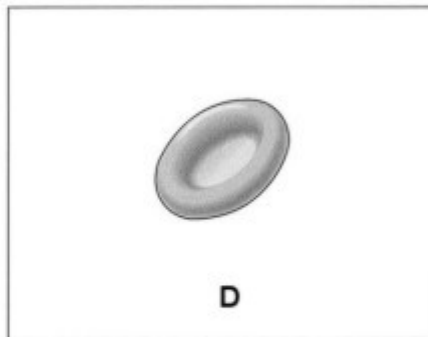
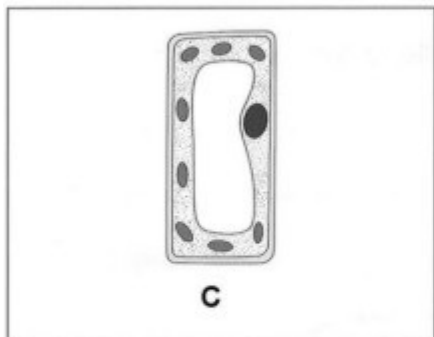
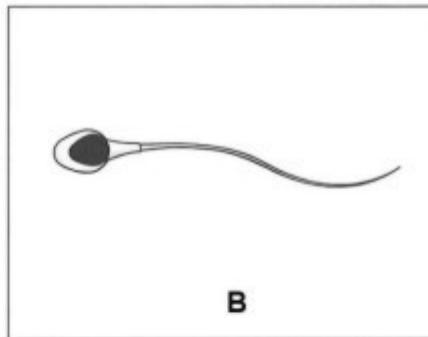
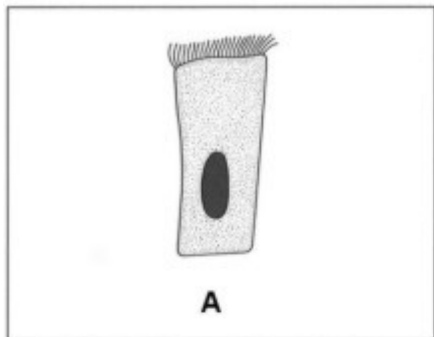
fibre

protein

starch

1 mark  
maximum 6 marks

**9.** The diagram below shows six cells.



(a) (i) Give the letters of the **two** plant cells in the diagrams.

..... and .....

1 mark

(ii) Which **one** of these plant cells contains chloroplasts?  
Give the letter.

.....

1 mark

(iii) Give the function of chloroplasts.

.....  
.....

1 mark

(b) (i) Give the letter of the ciliated cell.

.....

1 mark

(ii) In which part of the body are ciliated cells found?

.....

1 mark

(iii) What is the function of ciliated cells in this part of the body?

.....

.....

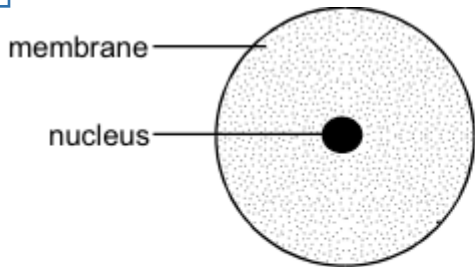
1 mark

(c) Give the letter of the cell which transfers genetic information from father to offspring.

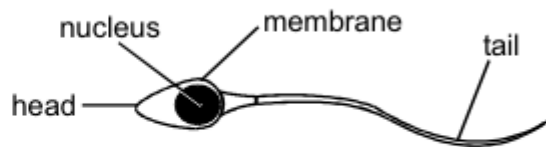
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1 mark  
maximum 7 marks

**10.** The diagrams below show a human ovum (egg) and a human sperm.



**human ovum (egg)**



**human sperm**

not to scale

(a) What are eggs and sperm?  
Tick the correct box.

animals       cells       organs

1 mark

(b) Which part does a sperm use to swim towards an egg?

.....

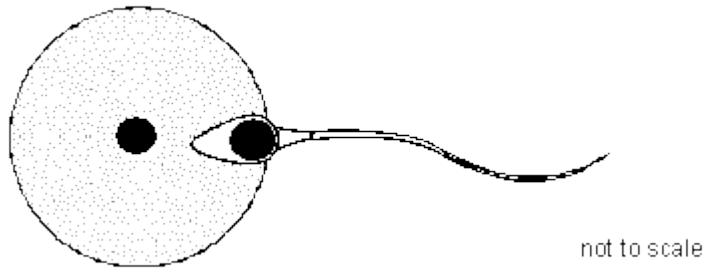
1 mark

(c) Give the name of the male reproductive organ where sperm are made.

.....

1 mark

(d) The diagram below shows a sperm joining with an egg.



What is this process called?  
Tick the correct box.

fertilisation	<input type="checkbox"/>	growth	<input type="checkbox"/>
nutrition	<input type="checkbox"/>	respiration	<input type="checkbox"/>

1 mark  
Maximum 4 marks