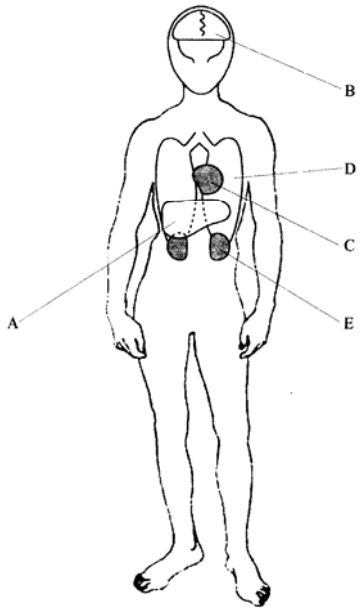
Low Demand Questions QUESTIONSHEET 1

The diagrams show some organs in the human body.



(a) Name the organs labelled A, B, C, D and E.

A. ..... [1]

B. ..... [1]

C. ..... [1]

D. ..... [1]

E. ..... [1]

(b) Which of the organs A, B, C, D or E

(i) produces urine?

..... [1]

(ii) pumps blood around the body?

..... [1]

(iii) controls the activity of the body?

..... [1]

(iv) absorbs oxygen from the air?

..... [1]

TOTAL / 9

Low Demand Questions QUESTIONSHEET 2

Match one of the structures from the list with each of the statements.

ovary testes alveolus trachea (windpipe) artery liver stomach eye

bladder ear kidney oesophagus (gullet) vein blood large intestine

(i) carries blood to organs.

..... [1]

(ii) contains light-sensitive cells.

..... [1]

(iii) produces digestive enzymes.

..... [1]

(iv) produces urea.

..... [1]

(v) carries carbon dioxide from the cells.

..... [1]

(vi) absorbs oxygen from the air.

..... [1]

(vii) produces sperm.

..... [1]

(viii) carries food from the mouth.

..... [1]

(ix) produces eggs.

..... [1]

(x) stores urine.

..... [1]

TOTAL / 10

Low Demand Questions QUESTIONSHEET 3

(a) All living things carry out certain life processes.
Name the life process given in the following definitions

(i) the release of energy from food.

..... [1]

(ii) the ability to react to the surroundings.

..... [1]

(iii) the release of waste products.

..... [1]

(iv) the production of offspring.

..... [1]

(b) To stay alive both plants and animals need a source of food.

(i) How do animals obtain food?

..... [1]

(ii) How do green plants obtain food?

.....

..... [2]

TOTAL / 7

Low Demand Questions QUESTIONSHEET 4

This is a list of plant organs

flower ovary root pollen stigma leaf anther stem

(a) Which of these plant organs

(i) absorbs water from the soil?

..... [1]

(ii) attracts insects?

..... [1]

(iii) makes food?

..... [1]

(iv) produces pollen?

..... [1]

(v) carries water up the plant?

..... [1]

(b) Which part of a plant cell

(i) gives the cell its shape?

..... [1]

(ii) contains chromosomes?

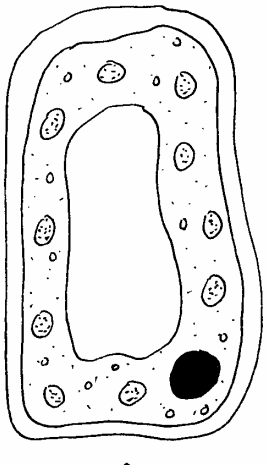
..... [1]

TOTAL / 7

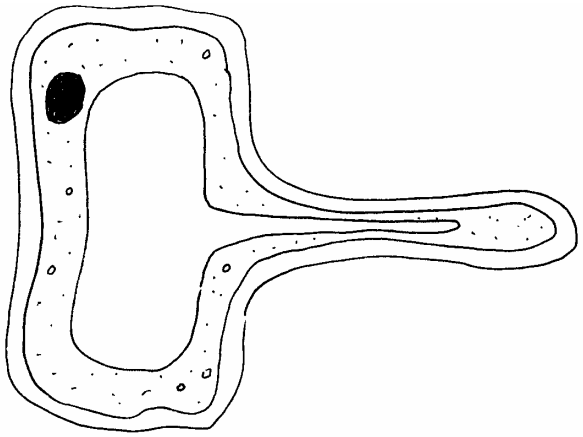
Medium Demand Questions QUESTIONSHEET 5

The diagrams show two types of plant cell A and B.

A



B



(a) Which cell is found in

(i) the leaf?

.....[1]

(ii) the root?

.....[1]

(b) Give **one** way in which the structure of each type of cell is adapted to its function.

(i) cell A

.....[1]

(ii) cell B

.....[1]

(c) Name three structures found in both types of cell.

1.....

2.....

3.....[3]

(d) Name one structure found only in cell A.

.....[1]

TOTAL / 8

Medium Demand Questions QUESTIONSHEET 6

The following statements are all concerned with cells. Some of the statements are true and some are false. Tick (√) the box to indicate the true statements.

1. All human cells have a nucleus. ☐

2. Xylem cells in plants carries water. ☐

3. Chloroplasts are found in cells of the leaf. ☐

4. Chromosomes are found inside chloroplasts. ☐

5. Cell walls are found in all animal cells. ☐

6. An organ is a group of cells with the same structure and function. ☐

7. All cells have a cell membrane. ☐

8. All animal cells contain cytoplasm. ☐

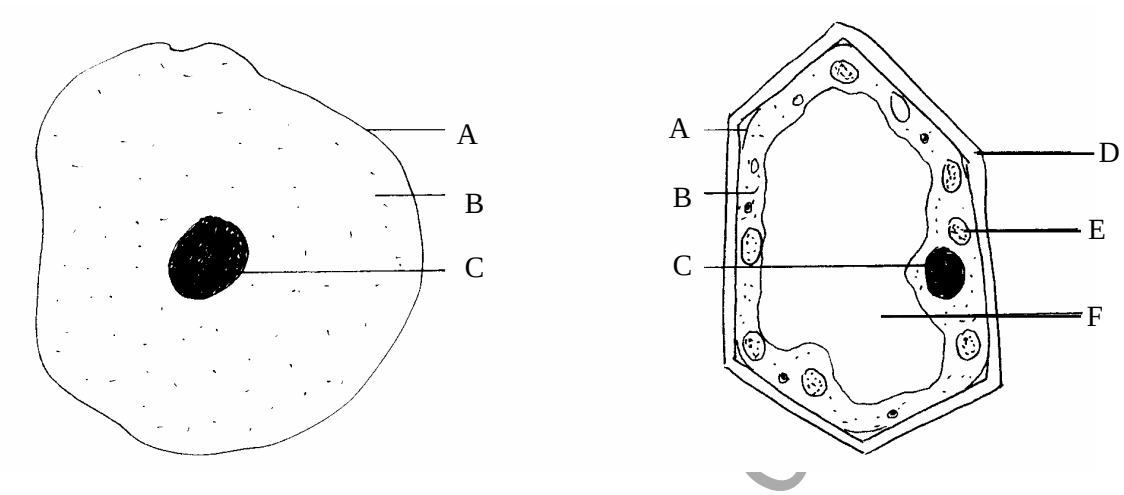
9. Vacuoles are found in most plant and animal cells. ☐

10. Genes are found on chromosomes. ☐

TOTAL / 5

Medium Demand Questions QUESTIONSHEET 7

The diagrams show a plant cell and an animal cell.



Cell X Cell Y

(a) Name the parts labelled A, D and F.

A ..... D ..... F ..... [3]

(b) (i) Which of the two cells is a plant cell?

..... [1]

(ii) Give two reasons for your choice.

1 ..... [1]

2 ..... [1]

(c) Give **one** function of

(i) part B. ..... [1]

(ii) part C. ..... [1]

(iii) part E. ..... [1]

TOTAL / 9

Medium Demand Questions QUESTIONSHEET 8

Below is a list of specialised cells.

Sperm cell
Root hair cell
Neurone
Palisade cell
Mesophyll cell
Red blood cell

(a) Using straight lines, clearly underline the animal cells in the list above. [3]

(b) The table below shows a series of statements about cells. Tick the boxes to show whether the statement is true or false. The first one has been done for you.

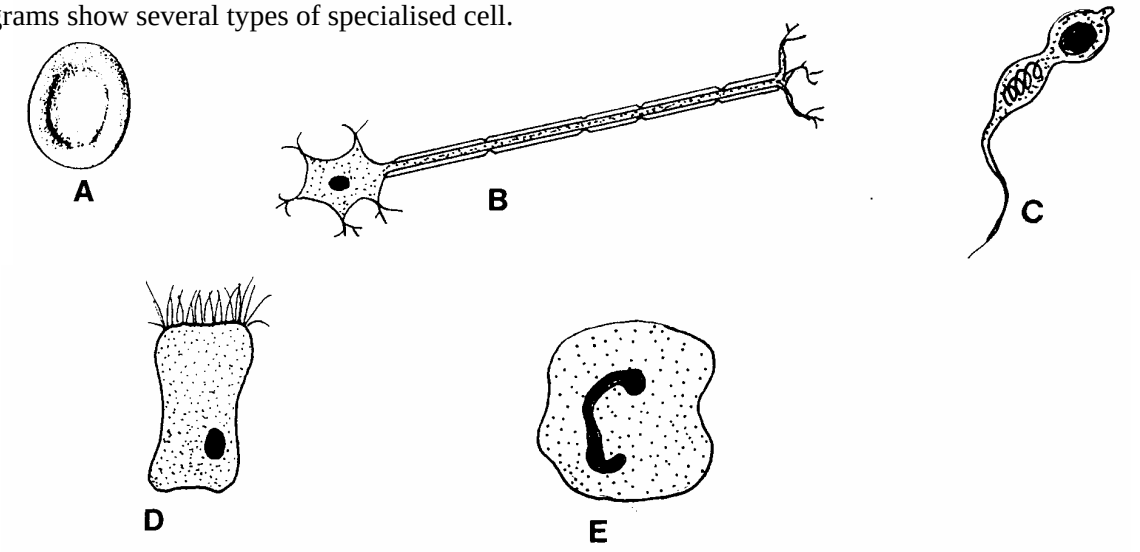
	True	**False**
All living organisms consist of cells	3	
Both animal and plant cells have a cell wall		
Both animal and plant cells have a cell membrane		
Both animals and plant cells contain a vacuole		
All plants cells contain chloroplasts		

[4]

TOTAL / 7

Medium Demand Questions QUESTIONSHEET 9

The diagrams show several types of specialised cell.



(a) Name each type of cell.

A ..... B ..... C .....

D ..... E ..... [5]

(b) Give the letter (A, B, C, D or E) which

(i) does not contain a nucleus.

..... [1]

(ii) traps dust and bacteria.

..... [1]

(iii) has half the normal number of chromosomes.

..... [1]

(iv) can ingest bacteria.

..... [1]

(v) carries information as electrical impulses.

..... [1]

(vi) contains haemoglobin.

..... [1]

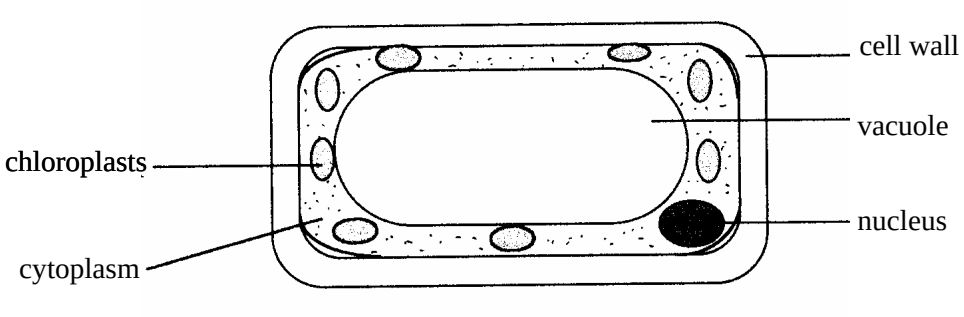
(vii) is part of the nervous system.

..... [1]

TOTAL / 12

Medium Demand Questions QUESTIONSHEET 10

The diagram shows a plant cell.



(a) State **two** features shown in the diagram which show this to be a plant cell.

1.....

2..... [2]

(b) Name one structure found in plant and animal cells which is not labelled on the diagram.

..... [1]

(c) The table lists some of the structures shown on the diagram. Tick (√) the boxes in the table to show which structures are present in the type of cells listed.

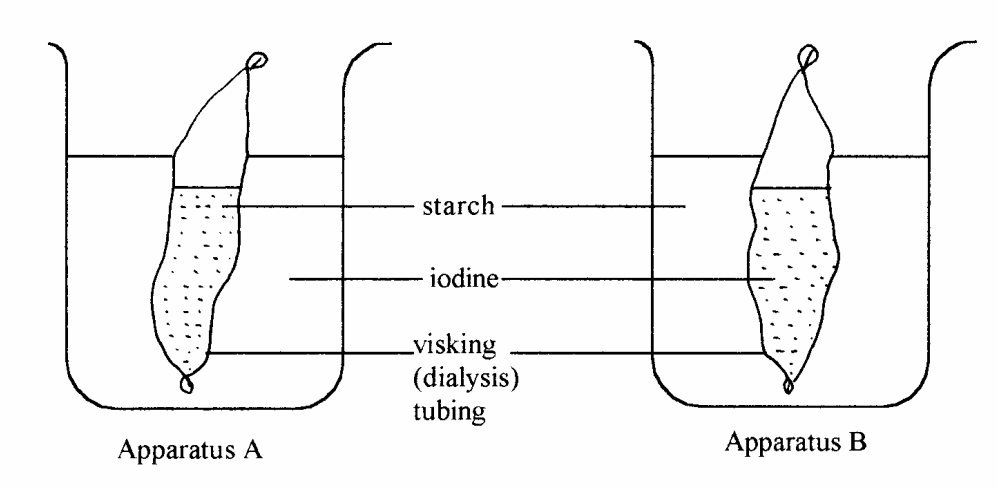
	Structure		
Type of cell	**Nucleus**	**Vacuole**	**Cytoplasm**
Red blood cell			
Nerve cell			
Root hair cell			

[6]

TOTAL / 9

Medium Demand Questions QUESTIONSHEET 11

A student set up the following apparatus.



The colour of the liquids inside and outside the visking tubing were recorded at the start and again after 30 minutes. The table shows the results.

	Apparatus A		**Apparatus B**	
	colour of starch	**colour of iodine**	**colour of starch**	**colour of iodine**
At start	milky	yellow	milky	yellow
After 30 minutes	dark blue	yellow		yellow

(a) Explain why the starch in apparatus A changed colour.

.....

.....

..... [3]

(b) Why did the iodine in apparatus A and B not change colour?

..... [1]

(c) (i) What would be the colour of the starch in apparatus B after 30 minutes.

..... [1]

(ii) Explain your answer.

.....

..... [2]

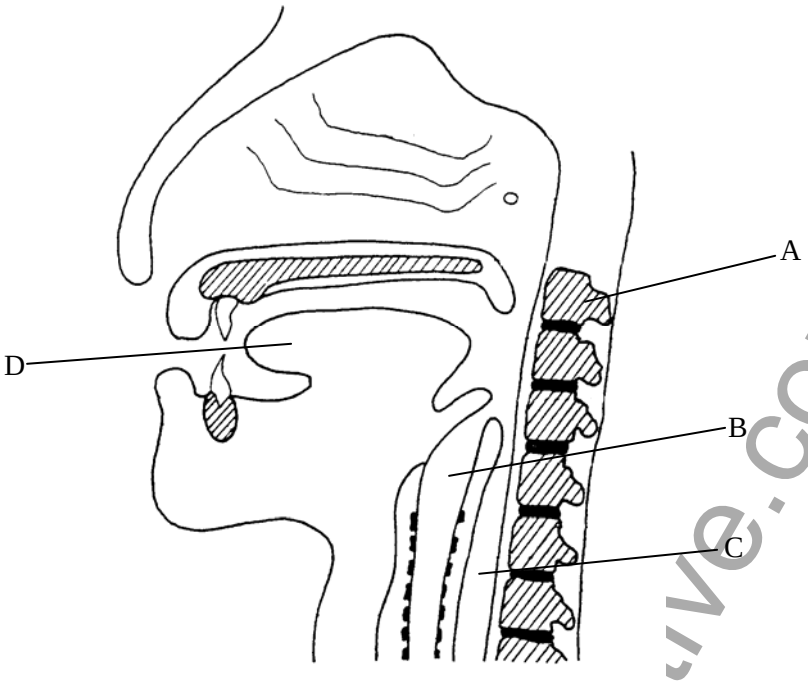
(d) What would happen to the volume of the liquid inside the visking tubing in apparatus A if the apparatus was left for several hours?

..... [1]

TOTAL / 8

Medium Demand Questions QUESTIONSHEET 12

The diagram shows a side view of a section through the head and neck.



(a) Give the letter of the part (A, B, C or D) which

(i) leads to the lungs.

..... [1]

(ii) contains bone tissue.

..... [1]

(iii) leads to the stomach.

..... [1]

(iv) contains ciliated epithelial cells.

..... [1]

(v) protects the spinal cord.

..... [1]

(vi) gives the sense of taste.

..... [1]

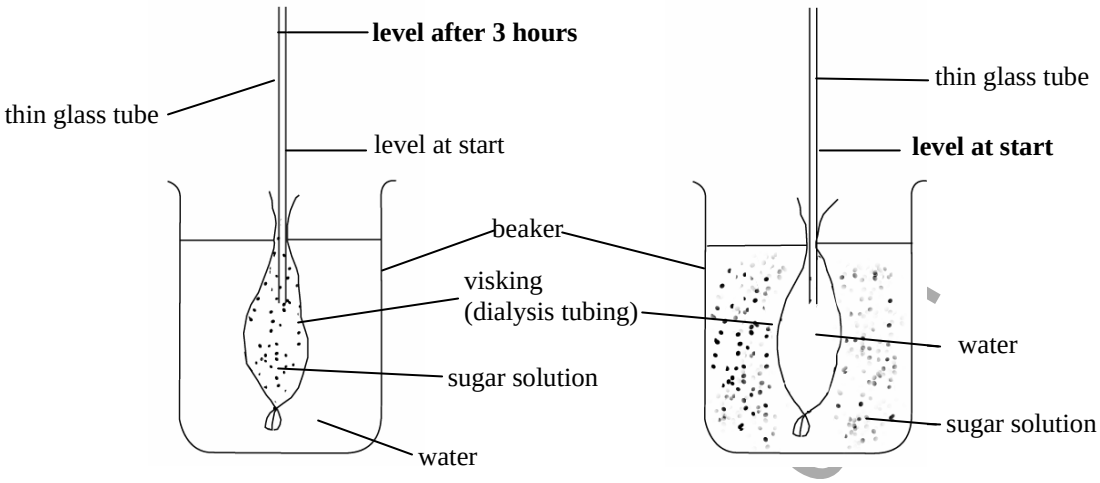
(b) What is the structure labelled X?

..... [1]

TOTAL / 7

High Demand Questions QUESTIONSHEET 13

A student set up the following apparatus.



(a) Explain why the level of the liquid in the glass tube in apparatus A rises after 3 hours.

.....

.....

.....

..... [4]

(b) (i) What would happen to the level of liquid in apparatus B after 3 hours?

..... [1]

(ii) Explain why this would happen.

.....

.....

..... [3]

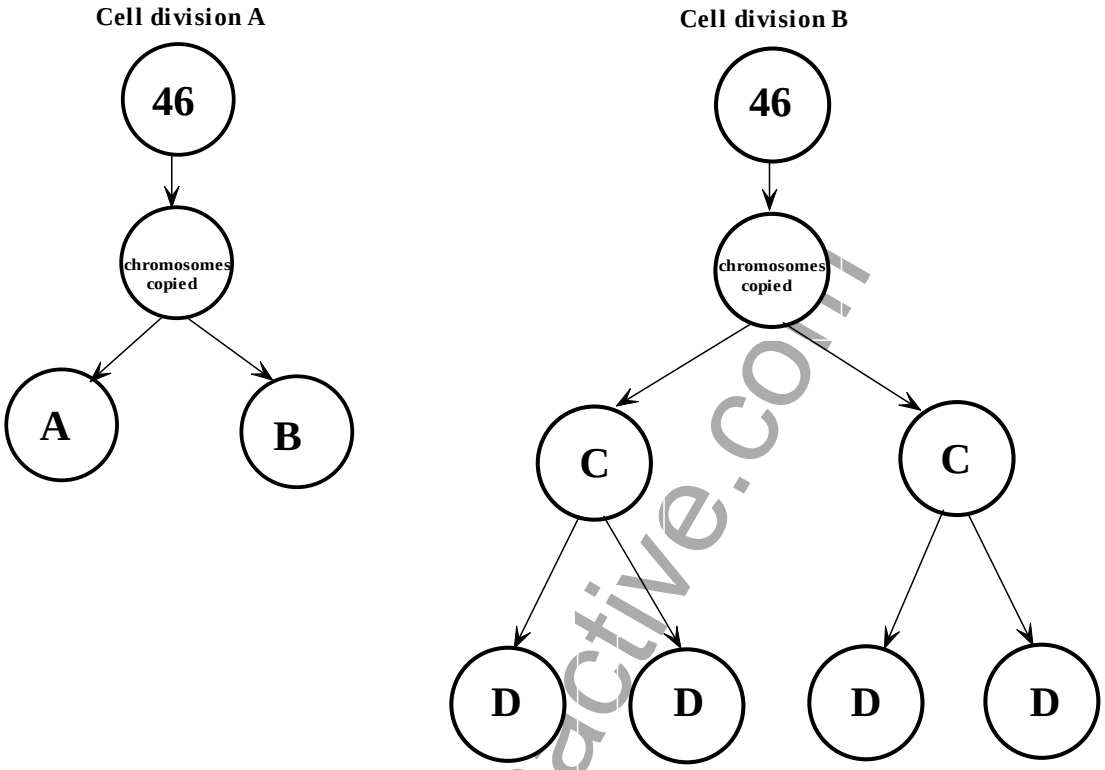
(c) What property of the visking tubing causes the changes in the levels of liquid?

..... [1]

TOTAL / 9

High Demand Questions QUESTIONSHEET 14

The diagrams below show the stages in two types of cell division.
The number of chromosomes in the original cell is shown.



(a) Give the number of chromosomes present in

(i) cell A.

..... [1]

(ii) cell B.

..... [1]

(iii) cells C.

..... [1]

(iv) cells D.

..... [1]

(Continued...)

(b) Which type of cell division

(i) takes place during growth?

..... [1]

(ii) forms gametes?

..... [1]

(c) State two ways in which cell division type B differs from cell division type A.

.....

..... [2]

(d) Explain the relationship between genes, chromosomes and the nucleus.

.....

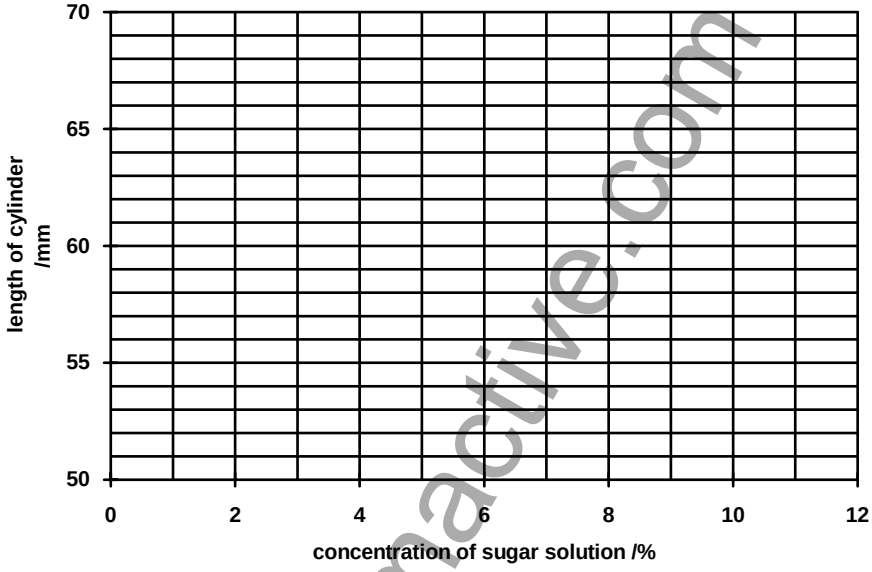
..... [2]

TOTAL / 10

Cylinders of potato, each of the same length were placed into different concentrations of sugar solution.
After two hours the cylinders were removed and the length was measured.
The table shows the results.

	Concentration of sugar solution %					
	2	**4**	**6**	**8**	**10**	**12**
length of cylinder at start /mm	60	60	60	60	60	60
length of cylinder after 2 hours /mm	63	61.5	60	59	58	57

(a) On the grid below, plot a line graph of the length of the cylinders after 2 hours. [3]



(b)(i) In which concentrations of sugar solution did the potato cylinder increase in length?

..... [1]

(ii) Explain how this is caused.

.....

.....

.....

..... [4]

(c) Which concentration of sugar solution had no effect on the length of the potato cylinder?

..... [1]

(Continued...)

(d)(i) Calculate the percentage decrease in the potato cylinder in 12% sugar solution.

.....

..... [2]

(e)(ii) Explain how this decrease is caused.

.....

.....

.....

..... [4]

TOTAL / 15

The table shows the relative amounts of DNA in the nucleus of the cells of the same animal.

Type of cell	Relative amount of DNA /arbitrary units
Skin cell	800
Liver cell	800
Sperm cell	400
Red blood cell	0
White blood cell	800
Kidney cell	800

(a) Explain why the red blood cell has no DNA.

.....

..... [2]

(b) Why is the DNA of sperm cells half that of other cells?

.....

.....

..... [3]

(c) State the relative amount of DNA in arbitrary units you would expect to find in

(i) a cell from the lining of the mouth.

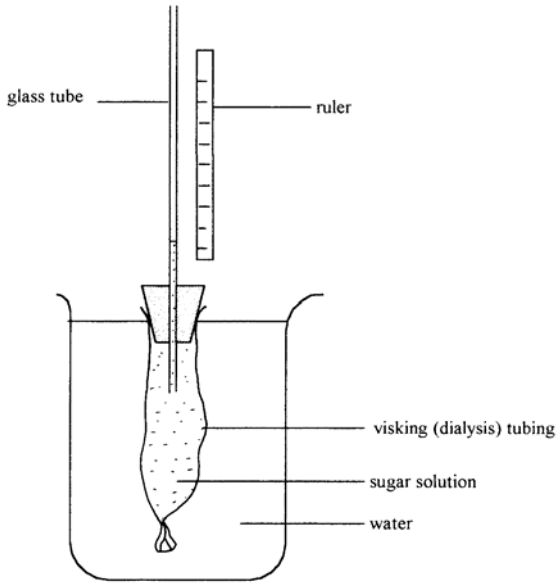
..... [1]

(ii) an egg cell.

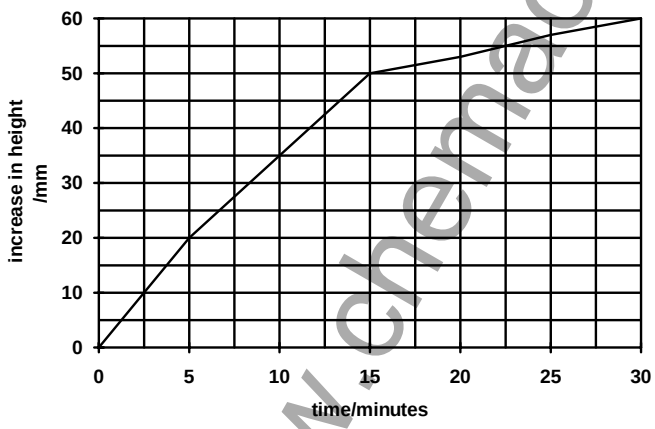
..... [1]

TOTAL / 7

In an investigation the following apparatus was set up.



The apparatus was left for 30 minutes and the increase in height of the liquid in the glass tube was recorded every 5 minutes. The graph shows the result.



(a) What was the increase in height

(i) after 5 minutes?

..... [1]

(ii) after 22.5 minutes?

..... [1]

(Continued...)

QUESTIONSHEET 17 CONTINUED

(b) What was the increase in height per minute for the first 10 minutes?

..... [1]

(c) What happened to the rate of increase in height after 15 minutes?

..... [1]

(d) Why did the water increase in height?

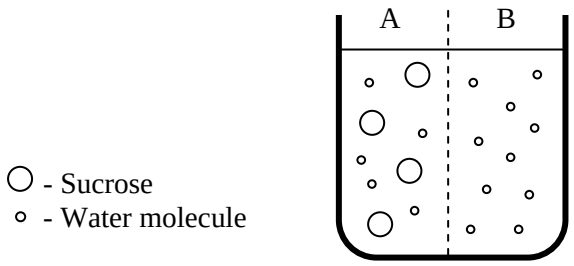
.....

.....

..... [3]

TOTAL / 7

The diagram below shows two solutions which have been placed in a glass beaker. They are separated by a partially permeable membrane. In compartment A there is a concentrated sucrose solution. In compartment B there is an equal volume of distilled water.



(a) Draw an arrow on the diagram to show which direction you would expect water molecules to move i.e from A to B or from B to A. [1]

(b) What is this movement of water molecules called?

.....

..... [1]

The table below describes two types of transport of substances across the cell membrane.

(c) Place a tick (3) or cross (8) in the boxes to show whether the statements are true or false. The first one has been done for you.

	Diffusion	Active transport
Requires energy	8	3
Molecules always move from a high concentration to a lower concentration		
Molecules can move from a lower to a higher concentration, against the concentration gradient		

[4]

TOTAL / 6

In an experiment two cavity slides were filled with distilled water and labelled A and B. Some red blood cells were placed in the water on A and some plant cells were placed in the water on B. The cells were observed under the light microscope.
After a short time the red blood cells in A were seen to have burst. The plant cells did not burst.

(a) Explain why the red blood cells burst.

.....

.....

..... [4]

(b) Explain why the plant cells did not burst.

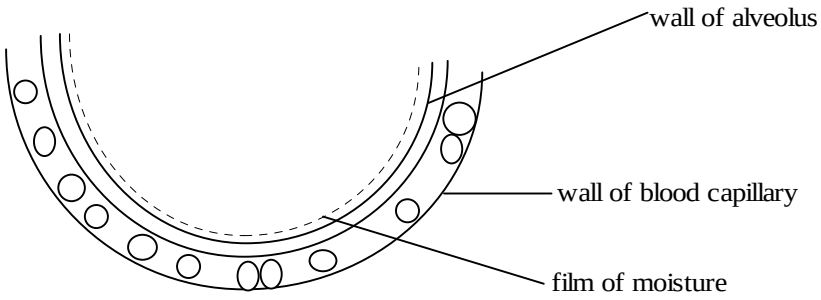
.....

.....

..... [3]

TOTAL / 7

The diagram shows a small part of an alveolus and a blood capillary.



(a) In which organ are alveoli found?

..... [1]

(b) Where, on this diagram, is the concentration of oxygen greatest?

..... [1]

(c) Where, on this diagram, is the concentration of carbon dioxide greatest?

..... [1]

(d) Explain how oxygen passes from the air in the alveolus into the blood.

.....

.....

..... [3]

(e) Give three ways in which the structure of the alveoli makes them well adapted for the exchange of gases.

.....

.....

..... [3]

TOTAL / 9