

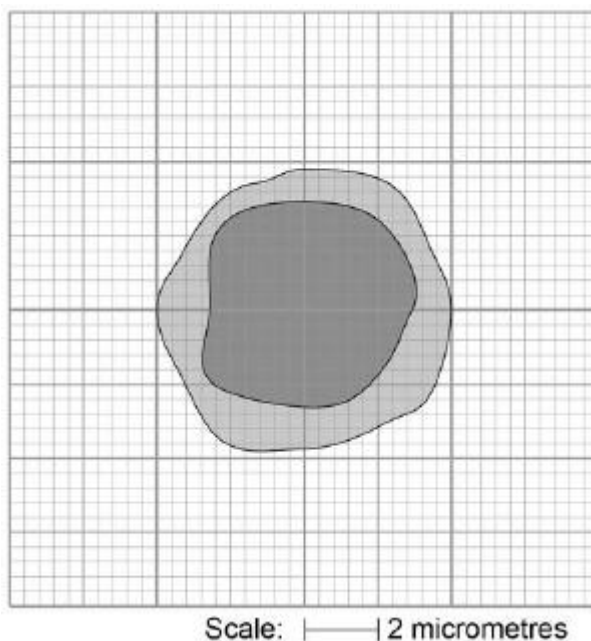
Name of the Student: _____

Max. Marks : 24 Marks

Time : 24 Minutes

Q1.

The figure below shows a scale drawing of one type of cell in blood.



- (a) Use the scale to determine the width of the cell.

Give your answer to the nearest micrometre.

Width of cell = _____ micrometres

(1)

- (b) Complete the table below.

Part of the blood	Function
	Carries oxygen around the body
	Protects the body against infection
Plasma	

(3)

(c) Platelets are fragments of cells.

Platelets help the blood to clot.

Suggest what might happen if the blood did **not** clot.

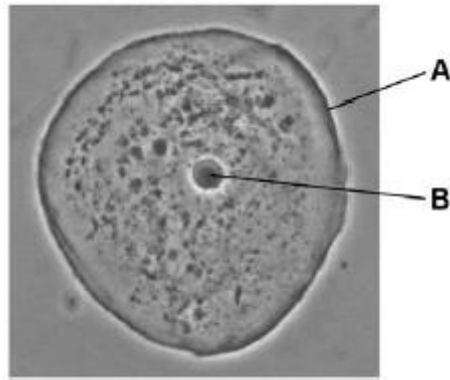
(1)

(Total 5 marks)

Q2.

Figure 1 shows an animal cell.

Figure 1



© alex-mit/iStock/Thinkstock

(a) What is structure **A**?

Tick **one** box.

Cell membrane

☐

Cell wall

☐

Chromosome

☐

Cytoplasm

☐

(1)

(b) What is structure **B**?

Tick **one** box.

Chloroplast

☐

Mitochondria

☐

Nucleus

☐

Vacuole

☐

(1)

(c) **Figure 2** shows a sperm cell.

Figure 2



Describe how a sperm cell is adapted to carry out its function.

(1)

- (d) Substances can move into and out of cells by three processes.

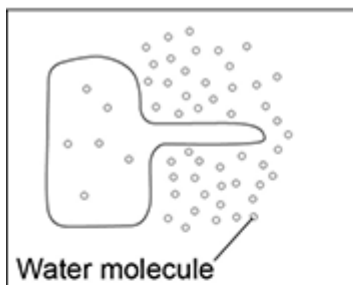
The diagrams show the concentration of different substances inside and outside a root hair cell.

How would each substance move into the root hair cell?

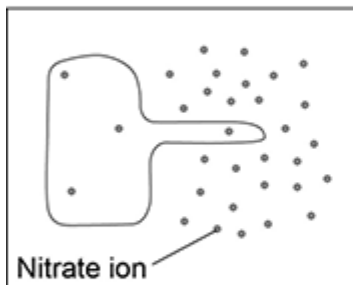
Draw **one** line from each root hair cell to the correct process.

Root hair cell

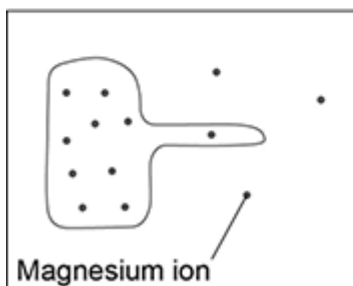
Process



Active transport



Diffusion



Osmosis

(2)
(Total 5 marks)

Q3.

Pathogens cause infectious diseases in animals and plants.

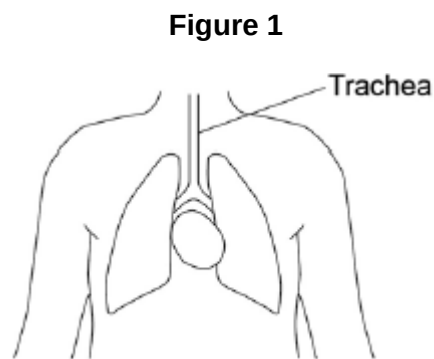
(a) Draw **one** line from each disease to the type of pathogen that causes the disease.

Disease	Type of pathogen
Gonorrhoea	Bacterium
Malaria	Fungus
Measles	Protist
	Virus

(3)

(b) Some parts of the human body have adaptations to reduce the entry of live pathogens.

Look at **Figure 1**.



Explain how the trachea is adapted to reduce the entry of live pathogens.

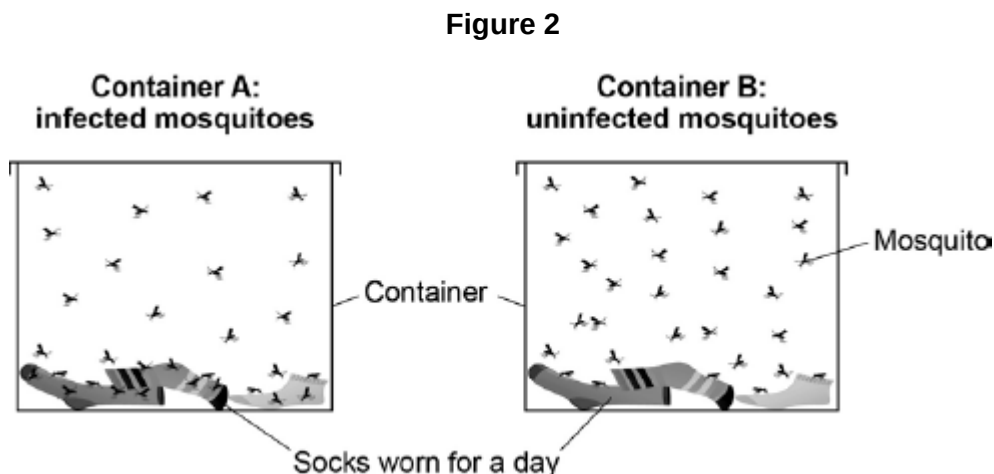
(4)

(c) Malaria is a serious disease that can be fatal.

Malaria is spread to humans by infected mosquitoes.

Scientists investigated the behaviour of mosquitoes to understand how the spread of malaria could be controlled.

Figure 2 shows the equipment the scientists used.



This is the method used.

1. 30 mosquitoes **infected with malaria** were placed in Container **A**.
2. 30 **uninfected** mosquitoes were placed in Container **B**.
3. The total number of times the mosquitoes landed on the socks was recorded.

Name the dependent variable and suggest **one** control variable in this investigation.

Dependent variable _____

Control variable _____

(2)

- (d) Infected mosquitoes landed on the socks three times more often than uninfected mosquitoes.

Explain how this information can be used to reduce the spread of malaria.

(2)

- (e) Tobacco mosaic virus (TMV) affects many species of plant.

Figure 3 shows a leaf infected with TMV.

Figure 3



Yellow patches where
TMV has destroyed
chloroplasts

© Nigel Cattlin/Getty Images

TMV destroys chloroplasts in the leaf.

Explain how this could affect the growth of the plant.

(3)

(Total 14 marks)