

Section A

1.

(a) Fig 1.1 is a diagram of a protein used to move ions across membranes in root hair cells.

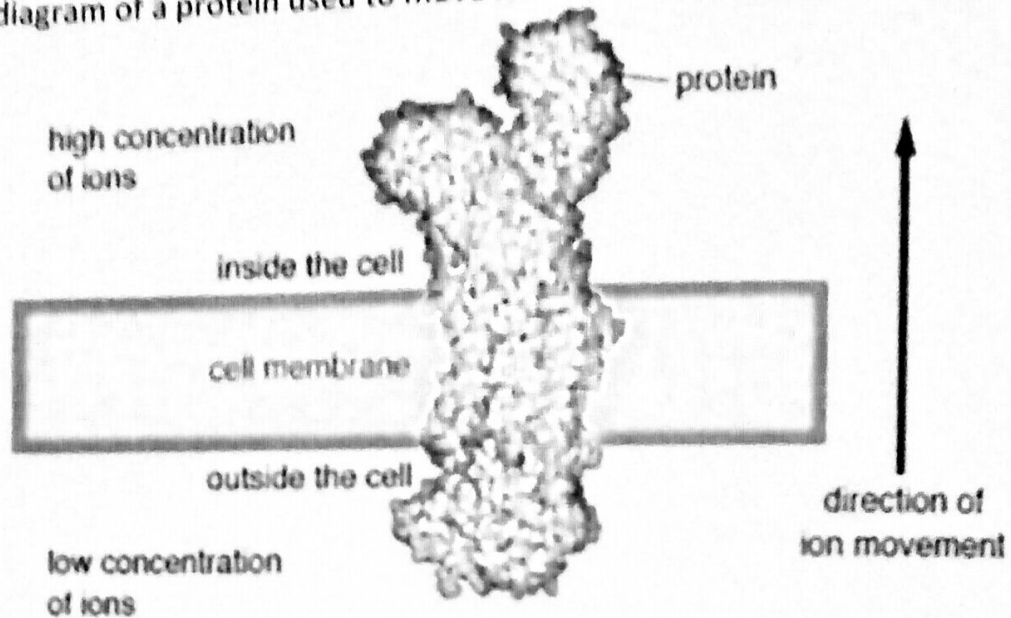


Fig 1.1

(i) State the name of the process that moves mineral ions into root hair cells through cell membrane proteins.

..... [1]

(ii) Explain how Protein molecules move ions across a membrane during this process.

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..... [3]

(b) Proteins are also found in blood.

State the names of two proteins found in the blood.

1
2 [2]

[Total 6]

2. Fig 2.1 is a photomicrograph of a leaf of the tea plant. *Camellia sinensis*.

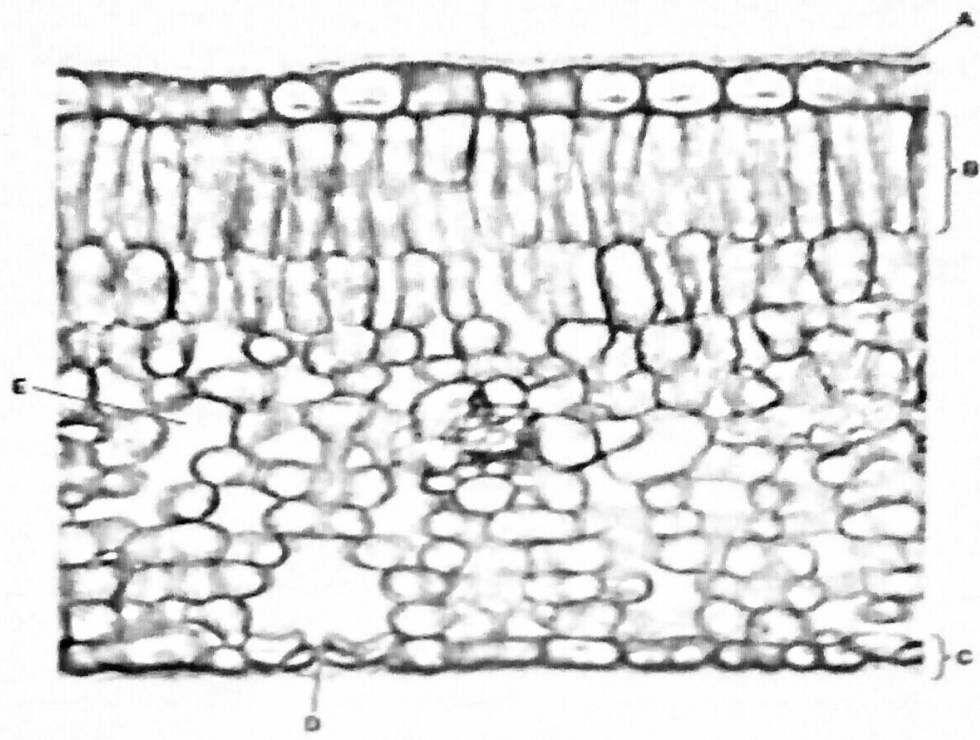


Fig 2.1

Name A to E.

- A
- B
- C
- D
- E

[Total 5]

3. All mammals have a double circulatory system. Fig 3.1 shows part of the human double circulatory system.

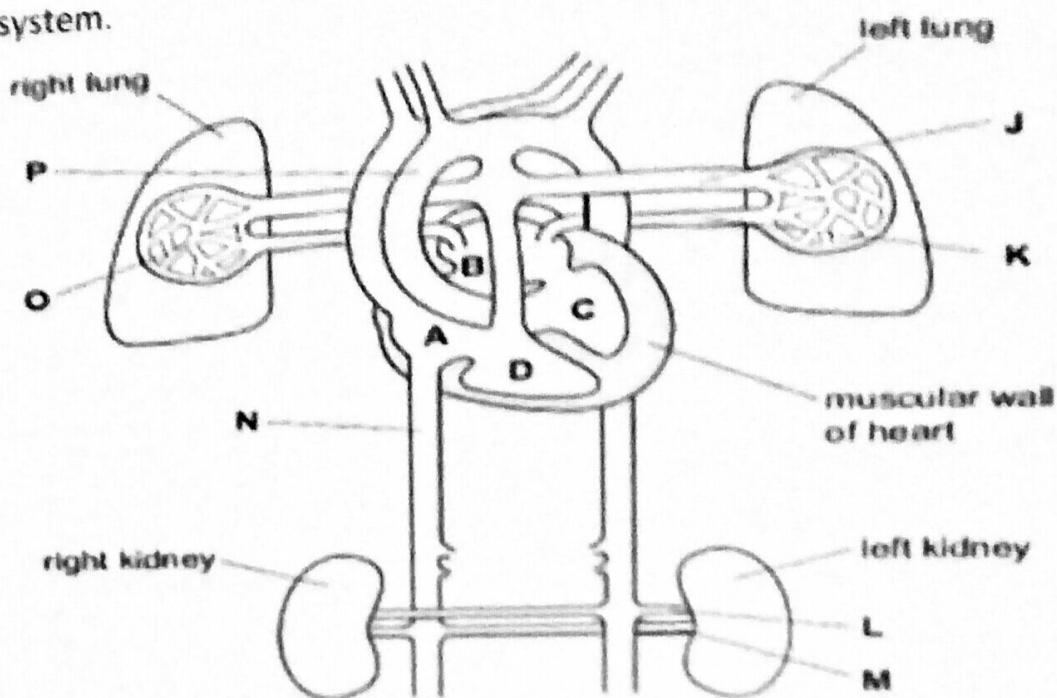


Fig 3.1

- (a) Name the muscular wall that separates the left and right sides of the human heart.

[1]

(b)

- (i) Describe what is meant by the term double circulation.

[1]

- (ii) State one advantage of a double circulation.

[1]

(c) The table describes some of the structures of the human circulatory system shown in Fig 3.1 complete the table.

One row has been done for you.

Description	Name of structure	Letter on Fig 3.1
Heart chamber with the thickest muscular wall	<i>left ventricle</i>	<i>L</i>
Blood vessel that carries oxygenated blood to the heart	<i>pulmonary vein</i>	
Blood vessel that carries oxygenated blood away from the heart	<i>aorta</i>	<i>P</i>
Blood vessel that carries blood away from the kidneys	<i>renal vein</i>	<i>M</i>
Blood vessel with the largest lumen	Vena cava	N

[4]

(d) Describe how blood is transported from the vena cava to the lungs. You may use the letters on Fig.3.1 in your description.

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[4]

(e)

(i) Doctors recommend that a healthy diet can reduce the risk of coronary heart disease.

Give one other lifestyle improvement patients can make that can reduce the risk of coronary heart disease.

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..... [1]

(ii) Sometimes surgery is required to treat coronary heart disease.

Describe one named example of surgery that can treat coronary heart disease.

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..... [2]

[Total 14]

Section B

4. A balanced diet is required to ensure healthy weight gain as children grow.

(a) Explain the term balanced diet.

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..... [5]

(b) A doctor diagnosed a young child with malnutrition.

Describe the symptoms of malnutrition.

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..... [5]

[Total 10]

5. Explain how the light energy from the sun is firstly used by plants and finally used by man for movement of his arm?

Dotted lines for writing the answer.

[Total 10]

Section C

Answer **either** question 6 **or** question 7.

6.

(a) Describe the structures and functions of capillaries in the circulatory system.

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[5]

(b) Describe the functions of each of the following:

(i) White blood cells

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[3]

(ii) Platelets.

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[2]

[Total 10]

7.

(a) Mechanically digested food travels from the mouth to the stomach. The gastric juice in the stomach contains hydrochloric acid, giving a low pH environment.

Explain why it is important to have a low pH in the stomach.

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..... [3]

(b) Products of digestion are absorbed through the villi in the small intestine.

Explain how villi are adapted for absorption.

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..... [3]

(c) Coeliac disease is caused by a reaction to a protein called gluten. The Villi becomes damaged causing a reduction in the absorption of nutrients.

Suggest possible effects on the body of a reduction in the absorption of nutrients.

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..... [4]

[Total 10]