

2 (a) Fig. 2.1 is a diagram of part of the human circulatory system.

The arrows show the direction of blood flow.

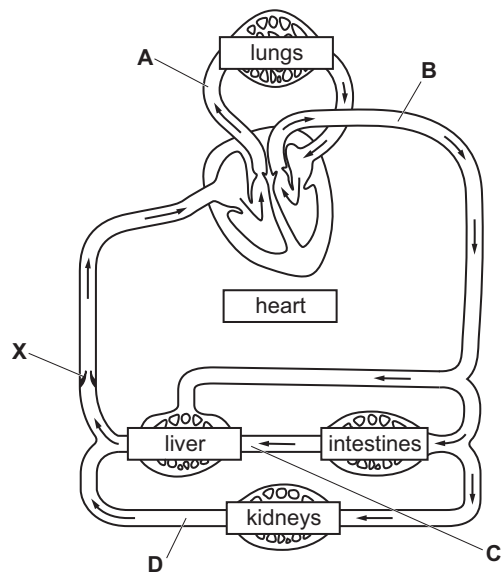


Fig. 2.1

- (i) Complete Table 2.1 by naming the blood vessels in Fig. 2.1 and stating whether the blood in each vessel is oxygenated.

Table 2.1

letter in Fig. 2.1	name of the blood vessel	carries oxygenated blood (yes/no)
A		
B		
C		
D		

[4]

- (ii) State the name of structure X in Fig. 2.1 and outline its function.

name

function

①

[2]

- (b) Fig. 2.2 is a diagram of part of a fish circulatory system.

The arrows show the direction of blood flow.

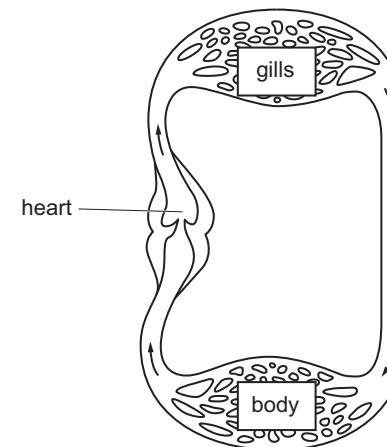


Fig. 2.2

- (i) Describe how the structure of the fish heart in Fig. 2.2 differs from a human heart.

.....

 [2]

- (ii) Explain the advantages of the type of circulatory system found in humans, compared with the circulatory system shown in Fig. 2.2.

.....

 [4]

②

(c) Fig. 2.3 is a photomicrograph of an arteriole.

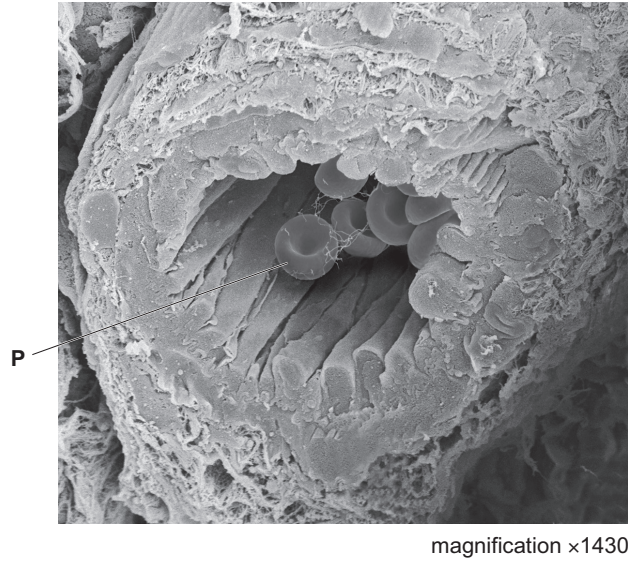


Fig. 2.3

(i) Identify the structure labelled **P** in Fig. 2.3.

..... [1]

(ii) The magnification of the image is provided. Write the formula that would be used to calculate the actual diameter of the lumen of the arteriole in Fig. 2.3.

..... [1]

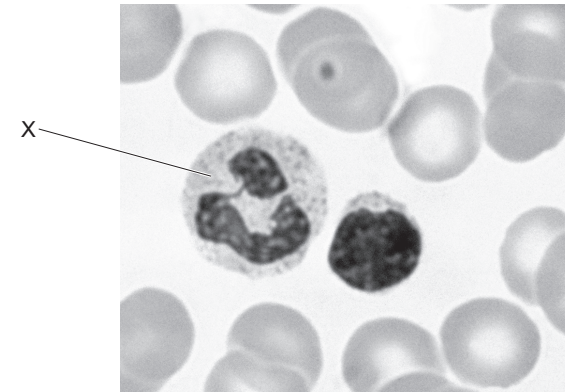
(iii) The actual diameter of the lumen of the arteriole shown in Fig. 2.3 is 0.0315 mm.

Convert 0.0315 mm to micrometres (μm).

..... μm [1]

[Total:15]

16 The photomicrograph shows some blood cells.



Which row shows the name and function of the cell labelled X?

	name	function
A	lymphocyte	engulfs pathogens
B	lymphocyte	produces antibodies
C	phagocyte	engulfs pathogens
D	phagocyte	produces antibodies

2 Fig. 2.1 is a photomicrograph of human blood.

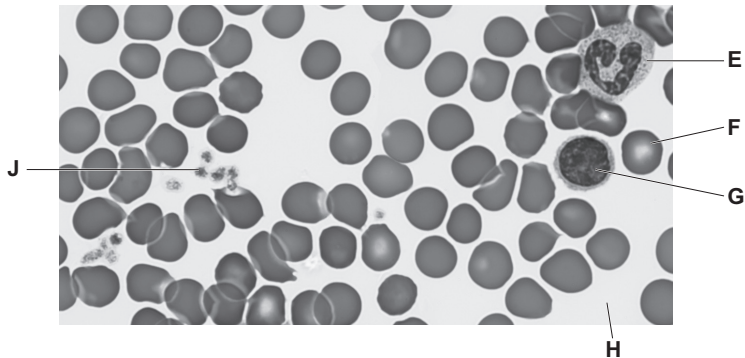


Fig. 2.1

(a) Use the information in Fig. 2.1 to complete Table 2.1.

Table. 2.1

component of blood	letter from Fig. 2.1	function
red blood cell		
		production of antibodies
	H	
		phagocytosis
platelet	J	

[5]

(b) Some diseases are transmissible.

- (i) State the name of a pathogen that is transmitted by direct contact with blood.
..... [1]
- (ii) State **two** ways that a pathogen can be transmitted **indirectly**.
1
2 [2]

(c) Describe the role of antibodies in the defence against pathogens.

.....
.....
.....
.....
.....
.....
..... [3]

(d) Explain how active immunity differs from passive immunity.

.....
.....
.....
.....
.....
.....
..... [3]

[Total: 14]