

2(a)(i)	letter on Fig. 6.1	name of the blood vessel	carries oxygenated blood
	A	pulmonary artery	no
	B	aorta	yes
	C	hepatic portal vein	no
	D	renal vein	no
; ; ; ;			
2(a)(ii)	<i>name:</i> valve ; <i>function:</i> prevents back flow of blood / AW ;		
2(b)(i)	<i>any two from:</i> (only) two chambers ; no, septum / left and right sides / AW ; fewer valves ; heart (chamber) walls of similar thickness (to each other) ; fewer blood vessels (going to and from the heart) ;		

2(b)(ii)	<i>any four from:</i> 1 blood is pumped to the lungs then to the body / blood goes through the heart twice in one complete journey / double circulation ; 2 oxygenated and deoxygenated blood, are kept separate / do not mix / separated by septum ; 3 efficient, supply of blood / glucose / oxygen / nutrients (to, the body / AW) ; 4 efficient, removal / carbon dioxide / urea / lactic acid (from, body / AW); 5 provides high(er) pressure (in body) ; 6 which allow a high, metabolic <u>rate</u> / <u>rate</u> of respiration ; 7 which allows filtration in kidneys (for excretion) ; 8 low(er) pressure in, pulmonary, artery / circuit / AW ; 9 to prevent damage to (capillaries in the) lungs ; 10 allow more time for, gas exchange / absorption of oxygen ; 11 AVP ;
2(c)(i)	red blood cell ;
2(c)(ii)	actual size = image size ÷ magnification ;
2(c)(iii)	31.5 (µm) ;

Question 16 (Answer: C)

- A lymphocyte has a very large round nucleus almost filling the cell.
- It makes antibodies against a specific antigen.
- It is the phagocytes – neutrophils – that engulf pathogens instead.

2(a)	component of blood	letter from Fig. 2.1	function
	red blood cell	F	transport / carry / AW, oxygen
	lymphocyte	G	production of antibodies
	plasma	H	transport / carries / contains / holds / AW, (blood) cells / ions / nutrients / hormones / proteins / antibodies / carbon dioxide / urea / waste / heat A solvent OR maintain, blood pressure / pH / osmotic balance
	phagocyte	E	phagocytosis
	platelet	J	(description of blood) clotting / prevent blood loss / release fibrin
:::;			
2(b)(i)	HIV / human immunodeficiency (virus) / AVP ;		
2(b)(ii)	<i>any two from:</i> (contaminated) surfaces / objects ; food ; water ; faeces / sewage ; soil ; air ; (named) animals / vector ;		

2(c)	<i>any three from:</i> 1 ref. to specificity OR antibodies have complementary (shape) to, antigen / pathogen ; 2 fit / bind, to (specific) <u>antigens</u> ; 3 mark / clump / immobilise / neutralise / inactivate, pathogens / toxins ; 4 (for) destruction of pathogens / phagocytosis / described ; 5 AVP ;
2(d)	<i>any three from:</i> <i>active immunity:</i> 1 (gained) as a result of infection / vaccination ; 2 antibodies are produced (by the body / lymphocytes / memory cells) ; 3 produces <u>memory</u> cells / ref to secondary immune response ; 4 long-term / permanent ; 5 slower response ;