

Question 15 (Answer: C)

- In a double circulation the blood passes through the *heart* twice for each complete circuit.
- One loop goes to the lungs and back; the other goes to the body and back.
- So the blood is re-pressurised between the two loops.

2(a)(i)	<table><tr><th>letter on Fig. 6.1</th><th>name of the blood vessel</th><th>carries oxygenated blood</th></tr><tr><td>A</td><td>pulmonary artery</td><td>no</td></tr><tr><td>B</td><td>aorta</td><td>yes</td></tr><tr><td>C</td><td>hepatic portal vein</td><td>no</td></tr><tr><td>D</td><td>renal vein</td><td>no</td></tr></table>	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
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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 15 (Answer: **A**)

- A fish has a single circulation: blood passes through the heart once per circuit.
- It leaves the heart, goes to the gills to be oxygenated, then on to the body.
- From the body it returns to the heart, so the sequence is gills, then body, then heart.

Question 16 (Answer: **D**)

- In a double circulation the blood passes through the heart twice per circuit.
- The heart re-pressurises the blood after the lungs, before sending it to the body.
- So the body receives blood at high pressure while the delicate lungs get it at low pressure.