Question number	Answer	Notes	Marks
3 (a)	right; atrium and ventricle;	allow plural of atria and ventricles	2
(b) (i)	X same and Y up;		1
(ii)	right and left side separate / septum / aorta connected to the left side / no water in LHS / eq;		1
		Total	4

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>4 (a) (i)</td><td>
<table>
<tr><th>Structure</th><th>Organ</th></tr>
<tr><td>Spongy mesophyll</td><td>leaf</td></tr>
<tr><td>Alveolus</td><td>lung(s);</td></tr>
<tr><td>Nephron</td><td>kidney(s);</td></tr>
<tr><td>Villus</td><td><u>small</u> intestine / duodenum / ileum;</td></tr>
</table>
</td><td></td><td>3</td></tr>
<tr><td>(b) (</td><td>ment of molecules/particles/gases/named molecule;

high conc. to low conc. / down concentration gradient / eq;

passive / eq;</td><td>ignore <u>substances</u>

allow along concentration gradient</td><td>Max 2</td></tr>
<tr><td>(c)</td><td>ultrafiltration / pressure;
glomerulus / Bowman’s capsule / renal capsule;</td><td>ignore filtered alone</td><td>2</td></tr>
</table>

Question number	Answer	Notes	Marks
3 (a)	light (intensity); affects/alters/increases/decreases/changes CO_2 level / gas exchange / photosynthesis;		2
(b)	size / species of leaves / eq; volume/amount/concentration of indicator; temperature;	ignore ref to tube size / time / cork seal / humidity	max 2
(c)	control / allow (valid) comparison / see if indicator changes (with no leaf) / colour change due to leaf / see if gas exchange happens without the leaf / eq;		1
(d) (i)	photosynthesis / allow photosynthesis more than respiration; less CO_2 / CO_2 absorbed / eq;	ignore photosynthesis and respiration unqualified ignore ref to pH	2
(ii)	respiration / <u>no</u> photosynthesis; CO_2 released / more CO_2 / no CO_2 absorbed / eq;	ignore ref pH	2
(e) (i)	respiration equals photosynthesis / CO_2 in equals CO_2 out / eq;	ignore gas exchange	1
(ii)	<u>no leaf</u>;	ignor empty tube / nothing in tube	1
(f)	limewater only shows increase in CO_2 / cannot show decrease in CO_2 / cannot show amount of CO_2 / eq;		1

TOTAL 12 MARKS

Question number	Answer	Notes	Marks
4 (a)	1. <u>at low light / up to A</u> carbon dioxide released; 2. carbon dioxide absorbed; 3. levels off / flattens / plateaus / stays constant / <u>light</u> no longer limiting factor;		2 max
(b)	<u>respiration</u> = <u>photosynthesis</u>;		1
(c)	1. hydrogen-carbonate (indicator); 2. yellow in dark / yellow more CO_2 / yellow release of CO_2; OR red/purple in light / red/purple less CO_2 / red/purple absorption of CO_2;	Mp 1 ignore other indicators Mp 2 ignore other colours Mp 2 correct for light but incorrect for CO_2 = 0	2 max

Total 5 marks