Question Number	Answer	Additional Guidance	Mark
8(a)(i)	D - S		**(1)**

Question Number	Answer	Additional Guidance	Mark
8(a)(ii)	D - ventricular systole		**(1)**

Question Number	Answer	Additional Guidance	Mark
8(b)(i)	The aorta and pulmonary artery are { attached to the wrong ventricles / the wrong way around }	Allow aorta leaves the right ventricle and the pulmonary artery leaves the left ventricle	**(1)**

Question Number	Answer	Additional Guidance	Mark
8(b)(ii)	An explanation that makes reference to the following: • the hole allows oxygenated and deoxygenated blood to mix (between the two ventricles) (1) • oxygenated blood { travels to the body / enters aorta } / deoxygenated blood { travels to the lungs / enters pulmonary artery } (1) • providing some oxygen for respiration (1)	Allow converse	**(3)**

<table>
<tr><th>Question Number</th><th colspan="2">Answer</th></tr>
<tr><td>8 (b)(iii)</td><td colspan="2">Answers will be credited according to candidate’s knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme.
The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant.
• rate of diffusion would be lower with abnormal heart
• blood entering lungs from an abnormal heart has more oxygen, 8kPa, than blood entering lungs from a normal heart, 5kPa
• oxygen in blood increased by only 2kPa instead of 8kPa with abnormal heart
• resulting in a smaller difference in concentration between the alveoli and the red blood cells i.e. 14-8/14-5 or 6 and 9kPa
• the surface area of the alveoli and distance for diffusion are not affected
• Fick's law states that concentration gradient is proportional to rate of gas exchange
• a lower concentration gradient for oxygen between the alveoli and the blood results in a lower rate of oxygen diffusion
NOTE – ‘the pieces of scientific information provided’ could be any from: the information about the defective heart / diagram of alveolus / table of data</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td></tr>
<tr><td>0</td><td>0</td><td>No awardable content</td></tr>
<tr><td>1</td><td>1-2</td><td>An answer may be attempted but with limited interpretation or analysis of the scientific information with a focus on mainly just one piece of scientific information.
The explanation will contain basic information with some attempt made to link knowledge and understanding to the given context.</td></tr>
<tr><td>2</td><td>3-4</td><td>An answer will be given with occasional evidence of analysis, interpretation and/or evaluation of the pieces of scientific information provided.
The explanation shows some linkages and lines of scientific reasoning with some structure.</td></tr>
<tr><td>3</td><td>5-6</td><td>An answer is made which is supported throughout by sustained application of relevant evidence of analysis, interpretation and/or evaluation of the pieces of scientific information provided.
The explanation shows a well-developed and sustained line of scientific reasoning which is clear and logically structured.</td></tr>
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