Mark Scheme - Exchange Surfaces - MCQ

Question			Answer/Indicative content	Marks	Guidance
1			B	1	
			Total	**1**	
2			B ✓	1	
			Total	**1**	
3			B ✓	**1**	**Examiner's Comments** This question was generally answered well, with candidates being able to discern the difference between correct and incorrect descriptions of the countercurrent process.
			Total	**1**	
4			C ✓	**1**	**Examiner's Comments** Candidates had to use values from a table to perform simple calculations, some involving standard form, and then process this information to choose the correct order of SA:V for a group of mammals. Many candidates were able to perform the calculations correctly to achieve the correct response.
			Total	**1**	
5			A ✓	1	
			Total	**1**	
6			C ✓	1	**Examiner's Comments** Candidates had to process the information in the graph of PEF data and choose the appropriate values to perform their calculation. Candidates often struggle with such percentage calculations in section **B**, but this posed little problem for the majority of candidates who were able to perform the calculation and identify C as the correct option.

			Total	**1**	
7			**B** ✓	1	
			Total	**1**	
8			**B** ✓	1	**Examiner's Comments** The correct response was B, but many candidates selected A or C. **OCR support** The topic exploration pack on 'Mechanisms of ventilation and gaseous exchange', provides ideas on teaching ventilation in insects: https:/www.ocr.org.uk/Images/209191-mechanisms-of-ventilation-and-gaseous-exchange.pdf
			Total	**1**	
9			C	1 (AO1.1)	
			Total	**1**	
10			D	1 (AO1.2)	
			Total	**1**	
11			B ✓	1 (AO1.1)	
			Total	**1**	
12			**C ✓**	**1**	**Examiner's Comments** This was answered quite well, the more common incorrect answers being **B** and **D**.
			Total	**1**	
13			B	1	

			Total	**1**	
14			B	1	
			Total	**1**	
15		i	large / increase the, surface area / SA:Vol ratio ✓ *idea of*: increase (the rate of) oxygen absorption / described ✓ oxygen levels in the lake are low ✓	2 max	**ALLOW** 'for oxygen absorption' if mp1 given e.g. of description: 'for (more) oxygen to diffuse in (through skin)' **Examiner's Comments** This question relates the properties of a good exchange surface, to the conditions in the lake. The majority of candidates were able to suggest that the skin folds provided a larger surface are or a large surface area to volume ratio. More able candidates added that this enabled the frog to absorb more oxygen from the water. Candidates should be encouraged to make clear that extra surface area helps to absorb more oxygen, ie they should make their explanations comparative. Few candidates suggested that this was because the oxygen levels in the lake were not very high. Despite the clear link to oxygen absorption in the stem of the question there were some unusual suggestions. For example: the extra folds might be used like fins to help the frog swim; the folds are due to loss of elasticity in the skin due to old age. **Key** **AfL** Guidance to offer for future teaching and learning practice
		ii		2 max	Mark first **D** response or **E** response only

			D large surface area ✓ **E** for (maximum) diffusion ✓ **D** squamous, epithelium / cells OR alveolar wall, only 1 cell thick / thin ✓ **E** (providing) a short diffusion distance ✓ **D** good, blood supply / ventilation ✓ **E** maintaining / creating a (steep) concentration gradient ✓		For two marks the **E** mark must be linked to the **D** mark **IGNORE** increase surface area, ref to SA:Vol ratio **ALLOW** idea of more or faster diffusion **Examiner's Comments** This question no longer relates to the Titicaca frog but to a general point about the lungs. A range of correct responses was seen with large surface area and thin alveolar wall being the most common. Less able candidates often gave poor descriptions of a thin alveolar wall – simply stating 'thin surface'. Examiners were hoping to see more detail than this for a mark to be credited. In general candidates had a good understanding of the features of a good exchange surface and could provide valid explanations. When one feature is asked for, the examiner will mark the first feature described. Candidates should be encouraged to read the question carefully and not add additional features as this takes time that they may use better elsewhere in the examination.
			Total	**4**	