Mark scheme - Biological Membranes - MCQ

Question			Answer/Indicative content	Marks	Guidance
1			D ✓	1	
			Total	**1**	
2			C	1	
			Total	**1**	
3			B ✓	1	
			Total	**1**	
4			C ⟩	1	**Examiner's Comments** About half of candidates got the mark. The most common incorrect answer was D, suggesting that many candidates were not aware that membranes are a site of reactions.
			Total	**1**	
5			B ⟩	1	**Examiner's Comments** This was another mathematical question and only 1 in 5 candidates achieved the mark.
			Total	**1**	
6			D ⟩	1	**Examiner's Comments** Around half of candidates were able to successfully apply their knowledge of biochemistry to the context of a plasma membrane.
			Total	**1**	
7			**C** ✓	1	**Examiner's Comments** The majority of candidates managed to answer this first question correctly as letter C.
			Total	**1**	
8			**D** ✓	1	**Examiner's Comments** The correct response, D, was selected by many candidates. The most common incorrect response was A. Possibly candidates were thinking about how glycoproteins can increase the stability of the membrane through hydrogen bonding to external water molecules.

			Total	**1**	
9			**D** ✓	1	**Examiner's Comments** Many candidates selected the correct response, D. A frequent incorrect response was B where candidates possibly felt that the large molecule in the membrane could have been an active transport protein. **Misconception** This may indicate misconception in candidates about facilitated diffusion and active transport.
			Total	**1**	
10			A	1 (AO1.1)	
			Total	**1**	
11			**D** ✓	1	**Examiner's Comments** This questions tests understanding of osmosis. Most candidates gave either C or D as their response. More able candidates realised that there may be some movement of water molecules and that the movement would be equal in both directions – response D.
			Total	**1**	
12			**C** ✓	1	**Examiner's Comments** This question about the effect of temperature change on membrane structure proved tricky for many candidates who did not think about the process carefully. Almost all the incorrect responses were D. These candidates obviously linked the graph to enzyme activity. In the same way that rising temperature affects enzyme structure, the proteins here are denatured. The difference is that once the membrane proteins are denatured they allow leakage of the betaxanthins. This occurs at point C.
			Total	**1**	
13			**D** ✓	1	**Examiner's Comments**

					This question tests understanding of how substances pass through cell membranes. The more able candidates appreciated that sodium ions would pass through channel proteins. If the number of channel proteins in the membrane is limited then this will eventually limit the rate of movement of the ions.
			Total	**1**	
14			**D ✓**	**1**	**ACCEPT A** **Examiner's Comments** Candidates could reasonably suggest either **A** or **D** as correct answers and both were credited in order to be fair to candidates.
			Total	**1**	
15			D	1	
			Total	**1**	
16			A	1	
			Total	**1**	