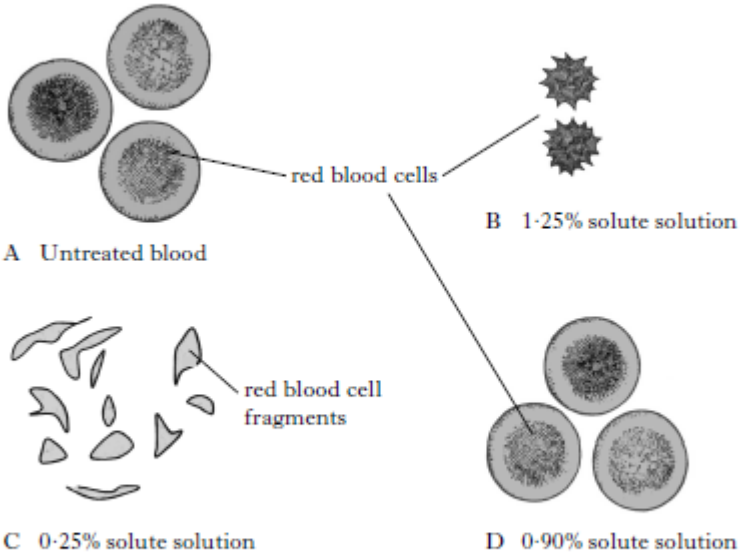
Homework 2: Transport Across The Cell Membrane

1.

The diagrams below represent red blood cells in different solutions as they would appear under a microscope.



A Untreated blood

B 1·25% solute solution

C 0·25% solute solution

D 0·90% solute solution

(*a*) Use the information in the diagrams to predict the percentage solute concentration of human blood. Explain your answer.

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Solute concentration _____ %

Explanation _____

_____

_____ **1**

(*b*) What has happened to the cells in diagram B? Explain the change in terms of water concentrations.

Description _____

Explanation _____

_____ **2**

2.

Four cylinders of potato tissue were weighed and each was placed into a salt solution of a different concentration.

The cylinders were reweighed after one hour and the results are shown below.

Salt Solution	*Initial mass of potato cylinder* (g)	*Final mass of potato cylinder* (g)
A	10·0	7·0
B	10·0	9·4
C	10·0	11·2
D	10·0	12·6

In which salt solution would most potato cells be plasmolysed?

3.

(a) State a feature of the cell membrane which allows the movement of only some substances into the cell. 1

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(b) Osmosis is a process which can occur across the cell membrane.

(i) Choose either the leaf cell or red blood cell by ticking (✓) one of the boxes below.

Describe the effect of osmosis on this type of cell if it was placed in pure water. 1

Leaf cell ☐ Red blood cell ☐

Effect on the cell _____

_____

(ii) 1 Name a process, other than osmosis, which allows molecules to pass through the cell membrane. 1

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_____

2 Give a definition of the process chosen. 1

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