

Movement of substances

Question Paper 4

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	Cell Membranes and Transport
Sub Topic	Movement of substances
Booklet	Theory
Paper Type	Question Paper 4

Time Allowed : 28 minutes

Score : / 23

Percentage : /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

- 1 (a) Cell surface membranes are involved with the movement of substances into and out of cells.

Calcium pumps in cell surface membranes maintain a concentration of calcium ions inside the cytoplasm that is a thousand times lower than outside the cell.

Fig. 1.1 shows the movement of calcium ions across a cell surface membrane.

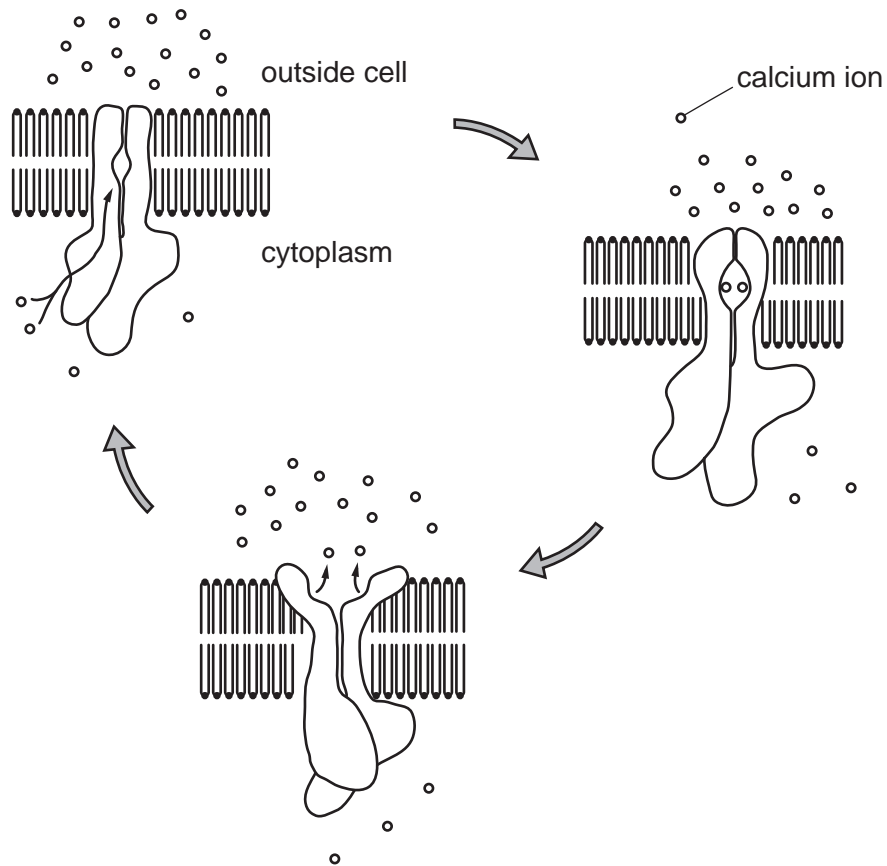


Fig. 1.1

With reference to Fig. 1.1,

- (i) explain why calcium ions do not pass through the phospholipid bilayer;

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..... [2]

- (ii) name and describe the process by which calcium ions are moved across the membrane.

name

description

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..... [3]

- (b) Phagocytosis is the process by which bacteria are ingested by cells.

Describe the role of the cell surface membrane during phagocytosis.

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- (c) Phagocytic cells contain many lysosomes.

Describe the function of lysosomes in destroying ingested bacterial cells.

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- 2 (a) State the roles of glycoproteins, carrier proteins and cholesterol in the cell surface membrane of an animal cell.

glycoproteins

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carrier proteins

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cholesterol

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.....[4]

- (b) Fig. 5.1 is a diagram of an animal cell showing the concentrations and direction of movement of an ion (A) and a non-polar molecule (B) on either side of the cell surface membrane.

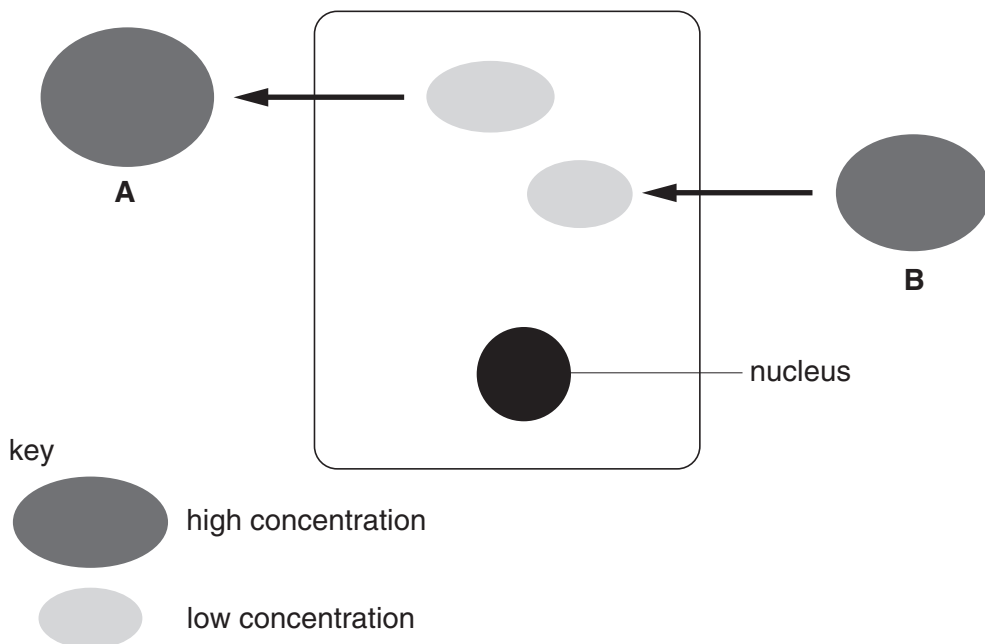


Fig. 5.1

With reference to Fig. 5.1, explain how **A** and **B** cross the cell surface membrane of the cell.

A

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B

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.....[4]

(c) Describe how particles, such as bacteria, are taken up by phagocytes.

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(d) Phagocytes contain many lysosomes.

State the function of lysosomes in phagocytes.

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.....[1]

[Total: 11]