Practice Question Set For A-Level
Subject : Biology
Paper-1 Topic: 2 Cells

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Name of the Student:_____
Max. Marks : 13 Marks **Time : 13 Minutes**

Mark Schemes

Q1.

(a) 1. (Movement) down a gradient / from high concentration to low concentration;
Ignore along / across gradient
Reject movement from gradient to gradient

2. Passive / not active processes;
OR
Do not use energy **from** respiration / **from** ATP / **from** metabolism;
OR
Use energy **from** the solution;
Reject do not use energy unqualified

2

(b) 1. Movement through carrier proteins;
OR
Facilitated diffusion;
Between A and B
Accept MP1 in either section
Ignore co-transport / active transport
Accept channel proteins

2. Rate of uptake proportional to (external) concentration;
Between C and D
Accept description of proportional

3. All channel / carrier proteins in use / saturated / limiting;
Accept used up
Accept transport proteins

3

(c) 1. Rate of uptake is proportional / does not level off (so diffusion occurring);
Accept as one increases the other increases

2. (Lipid-soluble molecules) diffuse through / are soluble in phospholipid (bilayer);

2

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Q2.

(a) 1. Method to ensure all cut surfaces of the eight cubes are exposed to the sucrose solution;

Credit valid method descriptions to fulfil mp1, 2 and 3 (no explanation is required).

2. Method of controlling temperature;

Accept 'at room temperature' for method

3. Method of drying cubes before measuring;

4. Measure mass of cubes at stated time intervals;

Accept time intervals between every 5 minutes with maximum of every 40 minutes.

Accept 'weigh the cubes at stated time intervals'

3 max

(b) Yes or No (no mark)

Calculation of rate per mm^2 for both sets of data, accept answers in the range
1.6×10^{-5} to 1.8×10^{-5} **and**
1.5×10^{-5} to 1.6×10^{-5};;; Both correct = 3

One correct = 2

Neither correct – look below for max 2

Allow 1 mark for calculation of surface area of two (sets of) cubes 7350 (mm^2) and 14700 (mm^2)

Allow 1 mark for calculation of both rates of osmosis shown in first 40 minutes – between 0.12 and 0.13 **and** between 0.22 and 0.23

If surface area and/or rate of osmosis is incorrect then, allow 1 mark for (their) calculated rate divided by (their) calculated surface area

Accept answers not given in standard form or to any number of significant figures ≥2sf as long as rounding correct.

3 max

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