[10133132]

Four pieces of plant tissue, each weighed 10 g, were immersed in four different sucrose solutions. The table below shows the mass of the four pieces of tissue after 1 hour.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tissue** | W | X | Y | Z |
| **Mass after 1 hour** (g) | 12.3 | 11.4 | 9.6 | 7.2 |

The percentage of plasmolysed cells was the highest in tissue

**A** W.

**B** X.

**C** Y.

**D** Z.

Ans: D

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[10133152]

Which of the following comparisons between diffusion and active transport is ***not*** correct?

|  |  |  |
| --- | --- | --- |
|  | **Diffusion** | **Active transport** |
| **A** | energy is not required | energy is required |
| **B** | cell membrane is required | cell membrane is not required |
| **C** | substances move from a region of higher concentration to a region of lower concentration | substances move from a region of lower concentration to a region of higher concentration |
| **D** | carrier proteins are not involved | carrier proteins are involved |

Ans: B

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[10133153]

***Directions***: The following two questions refer to the investigation below. Beetroot cells contain a red pigment in the vacuoles. A student cut some cubes (1 cm x 1 cm x 1 cm) from a beetroot and washed them in running water for 20 minutes. The cubes were then put into test tubes containing distilled water and alcohol of different concentrations (W, X, Y and Z) for 30 minutes. The table below shows the colour intensity of the solutions after 30 minutes.

|  |  |
| --- | --- |
| **Solution** | **Colour intensity** (maximum 5+) |
| Distilled water | – |
| W | + |
| X | +++ |
| Y | +++++ |
| Z | ++ |

(Key: ‘+’ means that the solution is red in colour. The larger the number of ‘+’, the more intense the colour. ‘–’ means that the solution is colourless)

Which alcohol is highest in concentration?

**A** W

**B** X

**C** Y

**D** Z

Ans: C

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[10133167]

Which of the following is/are correct explanation(s) of the experimental results?

(1) The phospholipids in the cell membrane dissolve in alcohol.

(2) The pigment molecules are non-polar and thus can move across the phospholipid bilayer.

(3) Carrier proteins are present on the cell membrane of the beetroot cells to transport the pigment molecules.

**A** (1) only

**B** (2) only

**C** (1) and (2) only

**D** (1), (2) and (3)

Ans: A

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Which of the following shows the arrangement of the two protein molecules in the cell membrane?

|  |  |  |
| --- | --- | --- |
|  | **X** | **Y** |
| **A** | attached to the surface of the phospholipid bilayer | embedded half-way in the phospholipid bilayer |
| **B** | embedded half-way in the phospholipid bilayer | spans the entire phospholipid bilayer |
| **C** | spans the entire phospholipid bilayer | attached to the surface of the phospholipid bilayer |
| **D** | spans the entire phospholipid bilayer | spans the entire phospholipid bilayer |

Ans: C

[10133222]

Which of the following correctly shows the paths through which water and fatty acid molecules move across the cell membrane?

**Water Fatty acid**

**A** path P path P

**B** path P path Q

**C** path Q path P

**D** path Q path Q

Ans: C

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