

a. What is osmosis?

Osmosis is the movement of water through a semi-permeable membrane from a region of high concentration to a region of low concentration, tending to equalise the concentrations of the water. Osmosis is passive transport, meaning it does not require energy to be applied.

b. What is osmosis processes?

Osmosis (/ɒzˈmou. sɪs/) is the spontaneous net movement of solvent molecules through a selectively permeable membrane into a region of higher solute concentration, in the direction that tends to equalize the solute concentrations on the two sides. ... Osmosis can be made to do work.

c. Is osmosis only water?

Only water or another solvent moves from a region of high energy or concentration to a region of lower energy or concentration. Diffusion can occur in any medium, whether it is liquid, solid, or gas. Osmosis occurs only in a liquid medium. ... Osmosis requires a semipermeable membrane.

d. What happens during osmosis?

Osmosis means the diffusion of water into or out of cells. Water moving into a cell can make the cell swell, or even burst! This happens when cells are placed into a hypotonic solution. ... This happens when cells are placed into hypertonic solutions.

e. Is osmosis a passive transport?

Passive Transport: Osmosis. Osmosis is the diffusion of water through a semipermeable membrane according to the concentration gradient of water across the membrane. ... Osmosis is a special case of diffusion. Water, like other substances, moves from an area of higher concentration to one of lower concentration.

f. What do you mean by tonicity?

Tonicity is a measure of the effective osmotic pressure gradient; the water potential of two solutions separated by a semipermeable cell membrane. ... There are three classifications of tonicity that one solution can have relative to another: hypertonic, hypotonic, and isotonic.

g. What is isotonic and hypertonic?

In an isotonic environment, the relative concentrations of solute and water are equal on both sides of the membrane. ... If placed in a hypotonic solution, a red blood cell will bloat up and may explode, while in a hypertonic solution, it will shrivel—making the cytoplasm dense and its contents concentrated—and may die.

i. What are the effect of tonicity on cells?

Tonicity. The tonicity of a solution is related to its effect on the volume of a cell. Solutions that do not change the volume of a cell are said to be isotonic. A hypotonic solution causes a cell to swell, whereas a hypertonic solution causes a cell to shrink.

j. What is the effect of hypotonic on red blood cells?

A hypotonic solution is a solution where the concentration of solute is low, which translate to a high water concentration. Hence, if a red blood cell is placed in a hypotonic solution, water would naturally enter the cell through osmosis as the concentration of water in the RBC is lower.

k. What is the tonicity of Blood?

The osmolarity of normal saline, 9 grams NaCl dissolved in water to a total volume of one liter, is a close approximation to the osmolarity of NaCl in blood (about 290 mOsm/L). Thus, normal saline is almost isotonic to blood plasma.

l. What is hypotonic solution?

A hypotonic solution is any solution that has a lower osmotic pressure than another solution. In the biological fields, this generally refers to a solution that has less solute and more water than another solution.

m. What is an isotonic solution?

An isotonic solution refers to two solutions having the same osmotic pressure across a semipermeable membrane. This state allows for the free movement of water across the membrane without changing the concentration of solutes on either side.

n. What is isotonic and hypertonic?

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o. What is hypertonic solution and hypotonic solution?

In your body, these solutes are ions like sodium and potassium. ... A hypotonic solution is one in which the concentration of solutes is greater inside the cell than outside of it, and a hypertonic solution is one where the concentration of solutes is greater outside the cell than inside it.