

3. What is the effect of cholesterol on the fluidity of plasma membrane

Buffers fluidity; increases fluidity in cold conditions by preventing tight packing, and controls overfluidity in case of high temperature.

4. What is the main difference in function between the Gap junction and the Tight junction?

Gap junctions allow communication between adjacent cells by transport of ions and small molecules while tight junctions prevent leakage of extracellular substances through the space between the cells.

5. Mention 3 Molecules that can be transported by simple diffusion through lipid bilayer structure?

O₂, CO₂, NO.

6. Regarding transport of ions through channels, is it following the kinetics of simple diffusion or facilitated diffusion?

Simple diffusion; rate is directly proportional to the concentration gradient.

7. Calculate the osmolarity of a 300 mMolar CaCl₂ solution??

$3 \times 300 = 900$ milliosmoles/L

8. What is the the Composition and the Osmolarity of the Normal Saline solution?

About 300 milliosmoles/L; 0.9% NaCl by mass.

9. What is the Osmolarity of 5% glucose solution? mention also if it is considered as an Isotonic, Hypotonic or Hypertonic solution

$(50 \text{ g/L}) / (180 \text{ g/mol}) * (1 \text{ Osm/mol}) = 0.278$ or 278 milliosmoles/L
which is less than 300 --> Hypotonic

10. How many grams of CaCl₂ do you need to dissolve in 1 litre of water to get an ISOTONIC solution?

$(X) / (111 \text{ g/mol}) * (3 \text{ Osm/mol}) / (1 \text{ L}) = 300 \text{ mOsm/L}$
so, X = 11100 mg = about [11 g]