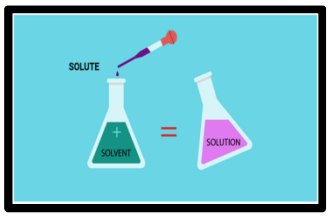

National Institute of Open Schooling
Senior Secondary Course: Chemistry
Chapter-7 (Solutions)
Worksheet-7

1. Suggest the most important type of intermolecular attractive interaction in the following pairs :

   (a) n-hexane and n-octane.

   (b) I_2 and CCl_4

   (c) $NaClO_4$ and water

2. Ram takes an open pan to cook vegetables at a hill station while Shyam cooked the same in a pressure cooker at the same place.

   (a) Define the normal boiling point of a liquid.

   (b) Explain the reason who will cook vegetables faster.

   (c) Mention the reason for the delay in cooking.

   (d) Which value is learned by the student in the process of cooking food in a pressure cooker?

3. Shalu's grandmother lives in Manali. In winter, there is a lot of snow in front of the house. She asked Shalu to clear the snow. Shalu added NaCl to the snow to clear it.

   (a) Why Shalu does so?

   (b) Is the addition of $Ca(NO_3)_2$ a better choice than NaCl? If yes, why?

   (c) What is the value in Shalu's thinking?

   (d) Define molal freezing point, depression constant, K_f.

4. Ira Singh, a student of class XII Chemistry stated that normal saline solution having 0.9% (mass/volume) NaCl is isotonic with the fluid inside the cell. Therefore, it is safe to inject normal saline solution intravenously.

5. **(a)** Define isotonic solutions. What would happen if the concentration of the saline solution is (a) more, (b) less than 0.9% (mass/volume) NaCl?

   (b) What values are associated with the statement of Ira Singh?

6. Sunil's friend is suffering from high blood pressure, Sunil advised him to take less quantity of common salt. As a student of chemistry why he suggested that? What are the values associated with it?

7. Vijay went to his grandfather's house in winter this year. As usual, he went fishing. His grandmother told him there will be no fish in the lake. He noticed that it was more difficult to find fish in winter. The fishes were deep inside the river. Whereas in summer they were on the surface and hence he was able to catch fish.

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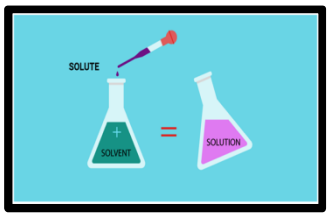


(a) Why are fish on the surface in water than in the depth in summer?

(b) What value can be derived from this?

8. Reena brought some flowers for the annual function but she observed it wilted. Ramu suggested that wilted flowers revive when placed in freshwater. Why would he suggest doing that? What value is associated with it?

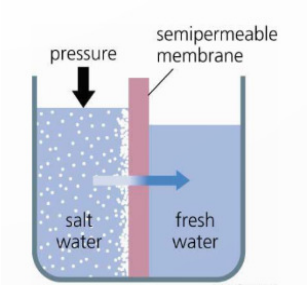
9. Scuba divers when coming towards the surface, the pressure gradually decreases resulting in the release of dissolved gases leading to the formation of bubbles of nitrogen gas in the blood which blocks the capillaries and thus harmful effects are created. To avoid bends and the toxic effects of high concentrations of nitrogen gas, the air is diluted with helium. After reading the above passage, answer the following questions.

   (a) Which law is associated with this?

   (b) What is the condition of bends overcome by the use of helium?

   (c) Mention the value associated with providing diverse air diluted with helium.

10. On the basis of the given diagram explain:



   (a) Name the process observed when pressure on the solution side is more than osmotic pressure.

   (b) Write the main use of this process.

   (c) Mention the values associated with the above process.

11. **(a)** The outer shells of the two eggs are removed. One of the eggs is placed in pure water and the other is placed in a saturated solution of NaCl. What will be observed and why?

   (b) A solution prepared by dissolving 8.95 mg of a gene fragment in 35.0 ml of water has an osmotic pressure of 0.335 ton at 25ºC. Assuming the gene fragment is a non-electrolyze, determine the molar mass.