

CLASS IX

CHEMISTRY

CHAPTER 2 – IS MATTER AROUND US PURE

CASE STUDY QUESTIONS

1. *True solutions are homogeneous but colloidal solutions and suspensions are heterogeneous in nature. Suspensions can be easily filtered whereas colloidal sols require special technique of filtration. Colloidal sols show some specific characteristics which true solution do not exhibit.*

Answer the following questions after reading the passage.

a) What kind of mixture will you get if 1 g of Calcium carbonate is shaken with water? Name it.

b) Potassium nitrate is shaken with water thoroughly and the mixture so obtained is allowed to pass through filter paper cone. Will you get any residue?

c) The mixture of starch and water will exhibit particle size:

i) above 100 nm ii) 1-100 nm iii) below 0.1 nm iv) 0.1 - 1 nm

d) Which of the following substance on dissolution in water form a mixture which does not show Tyndall effect?

i) Clay ii) Magnesium Carbonate iii) Sugar iv) Sulphur powder

2. *In certain experiment, 100 g of water was taken in two beakers A and B at 30 degree Celsius. Potassium chloride was added in beaker A while sugar was added in Beaker B till no more dissolution takes*

place. Both the beakers were heated to 80 degree Celsius and again the solutes were added till no more dissolution stage.

Select the correct answer in each of the following questions:

i) At 30 degree Celsius, the solution in beaker

- a) A is saturated but in beaker B is unsaturated
- b) A is supersaturated but beaker B is unsaturated
- c) A and B both are saturated
- d) A and B both are unsaturated

ii) More solutes could be added at 80 degree Celsius because

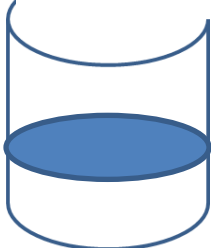
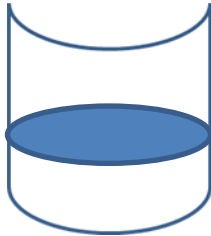
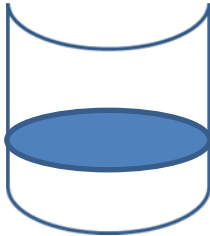
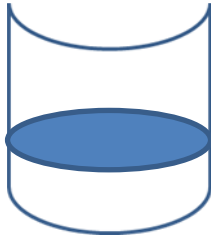
- a) Solubility decreases with rise in temperature
- b) Solutions become unsaturated at 80 degree Celsius
- c) Solutions become supersaturated
- d) Solutes decompose as the temperature rises

iii) If solubility of KCl at 50 degree Celsius is 40 g per 100 g of water, then what is the concentration of solution in terms of mass by mass % ?

iv) On cooling the solutions to 5 degree Celsius, the solutions

- a) become unsaturated
- b) become supersaturated
- c) remain saturated
- d) turn into colloidal sols

3. Concentration of a solution is expressed in different ways such as mass %, mass by volume % and volume by volume %. A student prepared three solutions of sodium hydroxide as follows:

A	B	C	D
			
20 g NaOH in 50 g water	20 g NaOH in water Volume of solution 250 ml	20 g NaOH + water, Mass of solution =225 g	150 g of water

Use the information and answer the following questions.

a) How much NaOH must be added to beaker D so that we get solution concentration same as that of solution A?

b) Concentration of solution B in (M/V) % is

i) 20 ii) 4 iii) 8 iv) 10

c) How many solutions out of A, B, C, D have same concentration?

(Given , density of solution B = 0.9 g/ml)

i) 2 ii) 3 iii) 4 iv) None