WORKSHEET 1

CHAPTER 2 – IS MATTER AROUND US PURE

A. Tick (✓) the correct option.

1. Which of the following is not a pure substance?
   a. Milk b. Sodium chloride c. Hydrogen d. Helium
2. Which of the following statements about mixtures is true?
   a. A mixture has a definite composition.
   b. Components of mixtures can be separated by physical processes.
   c. Mixtures are only homogeneous in nature.
   d. Mixtures are pure substances.
3. Which of the following is an emulsion?
   a. Mist b. Sponge c. Face cream d. Mud
4. Which of the following is not an element?
   a. Sulphur b. Potassium c. Boron d. Glucose
5. Which of the only metal to exist as liquid at room temperature?
   a. Lead b. Mercury c. Copper d. Gallium

B. Fill in the blanks.

1. A mixture of sugar in water is a _____ mixture.
2. _____ is an alloy of copper and zinc.
3. Particles of a solution are smaller than _____ in diameter.
4. Ammonium chloride _____ on heating.
5. Constituents of a _____ cannot be separated by physical methods.

C. State whether the following statements are true or false.

1. Path of light is not visible in a solution.
2. Butter is a homogeneous mixture.
3. A mixture of two miscible liquids, A and B, whose boiling points differ by 5 K, can be separated by simple distillation.
4. Metals are malleable but not ductile.
5. Ammonia has a fixed chemical composition.

D. Match the following.

1. Alloys	heterogeneous mixture
2. Butter	separation technique

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3. Handpicking	non-sublimable substance
4. Camphor	homogeneous mixtures
5. Calcium sulphate	sublimable substance

E. Answer the following questions.

Very Short Answer Questions

1. Define alloys. Give any two examples of alloys.
2. What is a saturated solution?

Short Answer Questions

1. A given solution contains 50 g of sugar dissolved in 200 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.
2. Differentiate between homogeneous and heterogeneous mixtures.

Long Answer Questions

1. Give the properties of a colloid.
2. How will you separate a mixture of common salt and ammonium chloride?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. a
2. b
3. c
4. d
5. b

B. Fill in the blanks.

1. homogeneous
2. Brass
3. 1 nm
4. sublimes
5. compound

C. State whether the following statements are true or false.

1. T
2. F
3. F
4. F
5. T

D. Match the following.

1. Alloys	homogeneous mixtures
2. Butter	heterogeneous mixture
3. Handpicking	separation technique
4. Camphor	sublimable substance
5. Calcium sulphate	non-sublimable substance

E. Answer the following questions.

Very Short Answer Questions

1. Alloys are homogeneous mixtures of two or more metals or a metal and a non-metal. They cannot be separated into their components by physical methods. For example, brass, bronze, etc.
2. A solution in which no more solute can be dissolved at a particular temperature and pressure is called as saturated solution.

Short Answer Questions

1. The mass by mass percentage of a solution is given by the following formula:

$$\left[\frac{\text{Mass of solute}}{\text{Mass of solution}}\right] \times 100$$

We are given that 50 g of sugar has been dissolved in 200 g of water. So,

$$\text{Mass of solute} = 50 \text{ g}$$

$$\text{Mass of solution} = \text{Mass of solute} + \text{Mass of solvent}$$

$$= (50 + 200) \text{ g}$$

$$= 250 \text{ g}$$

$$\text{Therefore, mass by mass percentage of the solution} = \left(\frac{50}{250}\right) \times 100$$

$$= 20\%$$

2. The differences between homogeneous and heterogeneous mixtures are given in the following table:

Homogeneous mixtures	Heterogeneous mixtures
A homogeneous mixture is the one which has a uniform composition throughout.	A heterogeneous mixture is the one which does not have a uniform composition throughout.
The components of homogeneous mixture are so thoroughly mixed that these components cannot be distinguished from one another.	In a heterogeneous mixture, the components can be easily distinguished.
All parts of a homogeneous mixture exhibit same property.	All parts of a heterogeneous mixture are not alike.
For example, a mixture of salt in water, glucose in water, air, etc.	For example, a mixture of mud in water, sand and iron filings, etc.

Long Answer Questions

1. The properties of a colloid are as follows:

   a. A colloid is a heterogeneous mixture.

   b. The size of particles of a colloid is too small to be individually seen by naked eyes.

   c. Colloids are big enough to scatter a beam of light passing through it and make its path visible.

   d. They do not settle down when left undisturbed, that is, a colloid is quite stable.

   e. They cannot be separated from the mixture by the process of filtration. But, a special technique of separation, known as centrifugation, can be used to separate colloidal particles.

2. Ammonium chloride is a sublimable substance while common salt is not. Hence, to separate a mixture of common salt and ammonium chloride, we can use the technique of sublimation. Take the mixture of common salt and ammonium chloride in a china dish and cover it by a perforated filter paper. Place an inverted glass funnel on the filter paper and plug the opening of its stem with some cotton. Place the china dish on a wire gauze and tripod stand and heat on a Bunsen burner. Ammonium chloride undergoes sublimation. Its vapours condense on the cooler parts of the funnel. Salt remains unaffected. When all of the ammonium chloride has condensed on the funnel, collect it by scrapping the funnel with a spatula.