

- 1 ☐
- 2 ☐ **Chapter 1:**  
**The science of chemistry**  
Chemistry AB
- 3 ☐ **Chemistry as a science**
  - Chemistry is concerned with the properties of chemicals and the changes that they can undergo
- 4 ☐ **Chemistry as a science**
  - Chemistry studies matter and energy
  - Chemistry is a pure science
- 5 ☐ **Inventory of a 17<sup>th</sup> -19<sup>th</sup> century apothecary's lab**
- 6 ☐ **Modern Biochemistry Lab**
- 7 ☐ **Facilities for Growth of Cultured Human Cells**
- 8 ☐ **Question**

Chemistry is the study of

  - a) matter and forces
  - b) forces and energy
  - c) matter and energy
  - d) protons and electrons
- 9 ☐ **Classification of matter**
  - Chemists use specific terms to identify different types of matter.
  - A chemical is any substance that has a definite composition
- 10 ☐ **Question**

The ancient Element that actually is a chemical is

  - a) Earth
  - b) Water
  - c) Fire
  - d) Air
- 11 ☐ **Classification of matter**

- Some chemicals occur naturally, while others are made artificially by humans

12 ☐ **Question**

Chemicals are

- a) unnatural compounds manufactured by humans
- b) naturally occurring substances found in nature
- c) both of these are true
- d) neither of these are true

13 ☐ **Chemical reactions**

- A chemical reaction is a process by which one or more substances change to form one or more different substances

14 ☐ **Chemical reactions**

- The substances present at the start of the reaction are called the reactants
- The substances produced by the reaction are called the products

15 ☐ **Question**

The materials that we have at the start of a reaction are called

- a) reactants
- b) enzymes
- c) catalysts
- d) products

16 ☐ **Question**

The materials that are produced during a reaction are called

- a) reactants
- b) enzymes
- c) catalysts
- d) products

17 ☐ **Mixtures and compounds**

- A sample of matter that contains two or more pure substances is a mixture
- The proportions of materials in a mixture can change

18 ☐ **Mixtures and compounds**

- The proportions of materials in a compound can never change

19 ☐20 ☐ **Examples of Mixtures**

- soil
- ocean water and other solutions
- air
- the cytosol of a cell

21 ☐ **Examples of Compounds**

- water ( $\text{H}_2\text{O}$ )
- table salt ( $\text{NaCl}$ )
- sucrose (table sugar,  $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ )

22 ☐ **Question**

The proportion of hydrogen to oxygen in water is always the same. Water is probably

- a) a mixture
- b) a compound
- c) either of these can be true

23 ☐ **Question**

The proportion iron to nickel in steel depends on the type of steel being made. Steel is probably

- a) a mixture
- b) a compound
- c) either of these can be true

24 ☐ **Types of mixtures**

- In a homogeneous mixture, the pure substances are distributed uniformly throughout the mixture
- A heterogeneous mixture contains substances that are not evenly mixed

25 ☐ **Types of mixtures**

- Different regions of a heterogeneous mixture have different

properties.

26 ☐ **Question**

Orange juice and tomato juice settle upon standing. These juices are

- a) compounds
- b) homogeneous mixtures
- c) heterogeneous mixtures

27 ☐ **Question**

Steel is made to have uniform properties throughout. Steel is

- a) a compound
- b) a homogeneous mixture
- c) a heterogeneous mixture

28 ☐ **States of matter**

- The type and arrangement of particles that make up a substance determines its physical state
- Solid, liquid, and gas are the states that are commonly encountered in chemistry

29 ☐ **Question**

The common states of matter do not include

- a) solid
- b) fluid
- c) gas
- d) liquid

30 ☐ **And then there's the most common state of visible matter**

31 ☐ **States of matter**

- The most common state of visible matter is plasma, a high energy fluid

32 ☐ **Question**

The most common state of visible matter is

- a) solid
- b) liquid

- c) gas
- d) plasma

33 ☐ **Properties of physical states**

- Solids have fixed volumes and fixed shapes
- Liquids have fixed volumes, but adapt to the shape of the containing vessel

34 ☐ **Properties of physical states**

- Gases have volumes and shapes that are determined by the size and shape of the containing vessel

35 ☐

- Gases will expand (change size) to fill any container (room, ball...)

36 ☐ **Question**

The state of matter that is characterized by fixed volume and fixed shape is

- a) solid
- b) liquid
- c) gas

37 ☐ **Question**

A sample of matter is found to change its shape and size to fit its container. This sample is a

- a) gas
- b) liquid
- c) solid

38 ☐ **Physical and chemical changes**

- Physical changes are changes in which the identity of a substance doesn't change.
- Changes of state are physical changes.

39 ☐ **Physical and chemical changes**

- Chemical changes occur when the identities of substances change and new substances form.

40 