Chapter 1 Test

Directions:

This is a 25-question test. Once you've completed it, the answer key will become available.

You may take this test only ONCE.

1) QID: 26382

Which of the following defines a theory?

- A concise statement that summarizes a fundamental relationship of nature.
- A theory is an encompassing idea that provides a full explanation for known observations.
- In every chemical operation, an equal quantity of matter exists before and after the operation.
- All matter is composed of indivisible atoms.

2) QID: 8052

Tap water consists of water, sodium and chloride ions, and possibly bacteria, chlorine, and other ingredients. Which choice best defines what tap water is?

- a mixture
- a pure substance
- an element
- a compound

3) QID: 8066

Scientists use prefixes to make new units that are either smaller or larger and are more convenient to use. For example, you could describe the distance to work as either 85 kilometers or 85,000 meters. Which prefix represents 1/100?

- milli
- centi
- kilo
- deci

4) QID: 26358

Which of the following describes a scientific law?

- A scientific law is a tentatively accepted explanation of facts.
- A scientific law is a concise statement that summarizes a fundamental relationship of nature.
- A scientific law is an all encompassing idea that provides a full explanation for known observations.
- A scientific law is a basic principle that may be stated without direct proof.

5) QID: 26360

Which of the following experimental results is inconsistent with the phlogiston theory?

- Magnesium and paper both burn in air.
- Magnesium and air, when burned, leave ash.
- The mass of ash left after the burning of magnesium is greater than the mass of the original magnesium.
- The mass of ash left after the burning of paper is less than the mass of the original paper.

6) QID: 26362

Which of the following elements of the scientific method is a concise summary of repeated scientific observations?

- A theory.
- An hypothesis.
- An experiment.
- A scientific law.

7) QID: 26371

Which of the following defines a hypothesis?

- A hypothesis is a tentatively accepted explanation of the facts.
- A hypothesis is a concise statement that summarizes a fundamental relationship of nature.
- A hypothesis is an encompassing idea that provides a full explanation for known observations.
- A hypothesis is a basic principle that may be stated without direct proof.

8) QID: 26386

"Melting point" is **not** a(n) _____.

- physical property of a substance
- qualitative property of a substance
- intensive property of a substance
- a reproducible property of a substance

9) QID: 8023

Suppose that during an experiment, you first melt a piece of ice. Then you heat the water until it evaporates. What type(s) of changes occurred during this experiment?

- physical change
- chemical change
- neither physical nor chemical changes
- physical and chemical changes

10) QID: 8025

Which term best describes the type of change that occurs when the identity or composition of matter is changed?

- physical change
- chemical change
- reactivity
- extensive change

11) QID: 8028

A candle left in the sunshine melts. Which statement best describes this transformation?

- both a physical change and a chemical change
- neither a physical change nor a chemical change
- a physical change
- a chemical change

12) QID: 1042

Color, hardness, solubility, mass, density, volume, and melting point are all examples of what type of property of substances?

- physical
- chemical
- intensive
- extensive

13) QID: 1043

The odor of a solution is an example of what type of measurement?

- chemical
- qualitative
- quantitative
- compositional

14) QID: 8017

What is the general term for a factor that you can measure about matter that does **not** require a change of composition?

- reactivity
- flammability
- physical property
- chemical property

15) QID: 8018

A physical property, such as mass or volume, that depends on the amount of matter, is called

- an extensive property
- a chemical property
- an intensive property
- water sensitivity

16) QID: 1053

Which of the following statements best describes the implied uncertainty of a measurement?

- Measurements must always have units written after them.
- Implied uncertainty means being able to get measurements within a narrow range of values.
- Implied uncertainty relates to how close to a true, hypothetical value your measured value is.
- Because any measurement device is limited by how small its units are, there is always an uncertainty in the last digit of a measurement.

17) QID: 1055

What are precise measurements?

- Precise measurements are all within a narrow range of values.
- Precise measurements are all made with same instrument.
- Precise measurements are all made with the same units.
- Precise measurements are close to a true, hypothetical value.

18) QID: 4531

Which of the following statements violates the stated rules (or conventions) for significant figures?

- 0.0030 has two significant figures.
- 300. has three significant figures.
- 18 has two significant figures.
- 0.29000100 has six significant figures.

19) QID: 8095

What is 200 K in degrees °C?

- −473 °C
- 473 °C
- 73 °C
- −73 °C

20) QID: 5792

What is 25°C in Kelvin?

- 25 K
- 125 K
- 298 K
- 300 K

21) QID: 8090

In the United States, people sometimes find it necessary to convert between kilometers and miles. The standard conversion is 1 km = 0.62 miles. If a typical marathon race is 42.3 km long, about how long is the race in miles? (1 km = 0.62 miles.)

- 62 miles
- 68.2 miles
- 42.3 miles
- 26.2 miles

22) QID: 1022

Which statement most accurately describes the discipline of chemistry?

- Chemistry is an isolated discipline.
- Chemistry helps us understand the behavior of materials at an atomic or molecular level.
- To be properly studied chemistry is broken down into two separate areas of study: organic chemistry and inorganic chemistry.
- The study of chemistry differs markedly from other scientific disciplines such as biology and physics.

23) QID: 1027

Which of the following is **not** influenced by chemistry?

- baking bread
- doing laundry
- changing ocean tides
- making wine

24) QID: 1017

Which of the following statements best defines the law of conservation of mass?

- If one atom gains mass, another will lose an equal amount.
- In every chemical reaction, an equal quantity of matter exists before and after the operation.
- Atoms are the building blocks of chemistry.
- All atoms of an element are identical in mass and all other physical properties.

25) QID: 1015

Which of the following steps is **not** a part of the scientific method?

- Design experiments and conduct observations.
- Formulate a theory based on a single observation.
- Formulate a hypothesis.
- Test hypothesis with an experiment.