

Basic Chemistry, 3e (Timberlake/Timberlake)
Chapter 1 Chemistry in Our Lives

1.1 Multiple Choice Questions

1) Water, H₂O, is an example of a(n) _____.

- A) chemical
- B) solid
- C) wave
- D) electric charge
- E) element

Answer: A

2) In this list, which substance can be classified as a chemical?

- A) salt
- B) sleep
- C) cold
- D) heat
- E) temperature

Answer: A

3) One example of a chemical used in toothpaste is _____.

- A) chlorine
- B) sulfur
- C) carbon dioxide
- D) calcium carbonate
- E) sugar

Answer: D

4) Which of the following is not a chemical?

- A) salt
- B) water
- C) light
- D) carbon dioxide
- E) sugar

Answer: C

5) Sodium fluorophosphate is a chemical used in toothpaste to _____.

- A) make the paste white
- B) disinfect the toothbrush
- C) keep the paste from spoiling
- D) remove plaque
- E) strengthen tooth enamel

Answer: E

6) Chlorofluorocarbons are broken down in the atmosphere by _____.

- A) nitrogen dioxide
- B) ozone
- C) iron
- D) oxygen
- E) sunlight

Answer: E

7) When a part of the body is injured, substances called _____ are released.

- A) aspirins
- B) pain relievers
- C) nitrogen oxides
- D) chlorofluorocarbons
- E) prostaglandins

Answer: E

8) The production of smog from the chemical NO requires _____.

- A) nitrogen
- B) chlorine
- C) water
- D) oxygen
- E) CFCs

Answer: D

9) When scientific information is used for industrial purposes, the discipline is known as _____.

- A) the scientific method
- B) marketing
- C) commercial
- D) hypothetical
- E) technology

Answer: E

10) Employing scientific information to develop new materials to benefit society is an example of _____.

- A) technology
- B) philosophy
- C) marketing
- D) sociology
- E) politics

Answer: A

11) DDT is a type of _____.

- A) herbicide
- B) poison gas
- C) plant
- D) insecticide
- E) metal

Answer: D

12) Chlorofluorocarbons are destructive to the _____.

- A) ozone produced at ground level in traffic
- B) water in the upper atmosphere
- C) nitrogen dioxide in smog
- D) ozone layer in the upper atmosphere
- E) copper in telephone wiring

Answer: D

13) Titanium dioxide is a chemical used in toothpaste to _____.

- A) make the paste white
- B) disinfect the toothbrush
- C) keep the paste from spoiling
- D) remove plaque
- E) strengthen tooth enamel

Answer: A

14) The first step in the scientific method is _____.

- A) using technology
- B) making observations
- C) forming a hypothesis
- D) doing experiments
- E) proposing a theory

Answer: B

15) DDT was a good pesticide because _____.

- A) it had low toxicity to animals
- B) it was cheap to prepare
- C) it was toxic to many insects
- D) it had low toxicity to humans
- E) all the above

Answer: E

16) One way to enhance your learning in chemistry is to _____.

- A) study a little every day
- B) form a study group
- C) go to office hours
- D) be an active learner
- E) all the above

Answer: E

17) You notice that there is more traffic between 8 and 9 in the morning. This would be a(n) _____.

- A) observation
- B) hypothesis
- C) experiment
- D) theory
- E) all the above

Answer: A

18) There is more traffic between 8 and 9 in the morning because most people start work at 9. This would be a(n) _____.

- A) observation
- B) hypothesis
- C) experiment
- D) theory
- E) all the above

Answer: B

19) In order to enhance your learning in chemistry, you should not _____.

- A) study a little every day
- B) form a study group
- C) go to office hours
- D) be an active learner
- E) wait until the night before the exam to study

Answer: E

20) Which of the following is a chemical?

- A) sugar
- B) heat
- C) light
- D) noise
- E) a wave

Answer: A

1.2 True/False Questions

1) The reddish-brown color of smog is due to NO₂.

Answer: TRUE

2) Chloroflourocarbons are broken down in the upper atmosphere to produce oxygen, O₂.

Answer: FALSE

3) DDT is effective against poison ivy.

Answer: FALSE

4) The first step in using the scientific method is usually the observation of some natural event.

Answer: TRUE

5) In the scientific method, a hypothesis has more data to support it than a theory.

Answer: FALSE

6) Titanium dioxide in toothpaste is used as a mild abrasive.

Answer: FALSE

7) A theory is confirmed after one experiment is performed.

Answer: FALSE

8) Alchemists believed there were four components of nature: earth, fire, air, and water.

Answer: TRUE

9) Working with a group of students can help you learn chemistry.

Answer: TRUE

10) Paracelsus was a Greek philosopher.

Answer: FALSE

11) DDT was banned because it breaks down quickly in the environment.

Answer: FALSE

12) Organic chemistry is the study of substances that contain carbon.

Answer: TRUE

13) Geochemistry is the study of the chemical reactions that take place in the body.

Answer: FALSE

1.3 Short Answer Questions

1) A type of matter that has the same composition and properties wherever it is found is a _____.

Answer: chemical

2) The brown color of smog is caused by _____.

Answer: nitrogen dioxide

3) The use of observation and hypothesis are important steps in the _____ method.

Answer: scientific

4) DDT is a effective against _____.

Answer: insects

5) A test performed to determine if a hypothesis is valid is called a(n) _____.

Answer: experiment

6) A hypothesis can be tested by performing a(n) _____.

Answer: experiment

7) Any material used in or produced by a chemical reaction is a _____.

Answer: chemical

8) An observation takes place when a(n) _____ is noted.

Answer: natural phenomenon

9) Name the steps in the scientific method.

Answer: observation, hypothesis, experiment, theory

10) When scientific principles are used to produce consumer goods, the discipline is termed _____.

Answer: technology

11) An abrasive used in toothpaste is _____.

Answer: calcium carbonate

12) When a hypothesis is supported by many experiments it becomes a _____.

Answer: theory

13) The science that studies the properties and composition of substances is called _____.

Answer: chemistry

14) In the scientific method, after data is collected, a _____ is proposed which gives a possible explanation.

Answer: hypothesis

15) The substance the alchemists thought could turn metals into gold was called _____.

Answer: the philosopher's stone

16) The substances released when tissues are injured are _____.

Answer: prostaglandins

17) Substances which prevent spoilage are called _____.

Answer: antioxidants

18) The chemical used to make cans and foil is _____.

Answer: aluminum