

Import Settings:

Base Settings: Brownstone Default

Information Field: chaptername

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Highest Answer Letter: E

Multiple Keywords in Same Paragraph: No

Chapter: Chapter 1

Multiple Choice

1. The smallest unit of matter which cannot be broken down except in nuclear reactions is known as

- A) an atom.
- B) an element.
- C) matter.
- D) a molecule.

Ans: A

chaptername: 1

questiontype: Multiple Choice

section: 1.1

2. Based on the events that followed a tsunami near Japan which severely damaged the Fukushima power plant on March 11, 2011 the country of _____ decided to permanently close all its nuclear power plants by the year 2022.

- A) France
- B) Japan
- C) United States
- D) Germany

Ans: D

chaptername: 1

questiontype: Multiple Choice

section: 1.1

3. Which of the following would not be classified as a scientific hypothesis?

- A) Tea is sweeter when made by using aspartame in place of sugar.
- B) A person can lose weight more quickly by combining exercise and calorie restriction than by calorie restriction alone.
- C) Dogs are better pets than cats.
- D) Grass fed beef has a lower fat content than beef produced from feed lot cows.

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.1

4. Following the step in which a scientist runs experiments and analyzes data, he or she is ready to

- A) create a hypothesis.
- B) develop a theory.
- C) make observations.
- D) perform additional experiments.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.1

5. Which one is NOT a purpose of the peer review process?

- A) repeating experiments that were carried out
- B) commenting on an article submitted for publication
- C) scrutinizing data that was obtained
- D) making sure that an article gets published in other languages

Ans: D

chaptername: 1

questiontype: Multiple Choice

section: 1.1

6. A hypothesis is

- A) a set of experiments that are performed.
- B) a detailed explanation of experimental results.
- C) an initial best guess about some observation concerning nature.
- D) a close scrutiny of data obtained during the course of experimentation.

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.1

7. Which statement is false?

- A) The first step of the scientific method is observation.
- B) A theory is proven through extensive experimentation.
- C) Peer reviewers read an article that a scientist has written and provide feedback to the author.
- D) Each scientist working on a problem usually only works on one small part of a problem.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.1

8. What is the purpose of a **model** in chemistry?

- A) To represent nature in a way that is easier to see or understand
- B) To make something that is normally small much larger

- C) To create something that can be drawn on paper
- D) To make something that can be modified using computer software

Ans: A

chaptername: 1

questiontype: Multiple Choice

section: 1.1

9. Which ONE of the following is the correct way to represent this value in scientific notation?

960,000,000,000

- A) 96×10^9
- B) 9.6×10^9
- C) 0.96×10^9
- D) 9.6×10^{11}

Ans: D

chaptername: 1

questiontype: Multiple Choice

section: 1.2

10. Express the following value in scientific notation: 0.000145

- A) 145×10^3
- B) 1.45×10^{-4}
- C) 1.5×10^5
- D) 14.5×10^{-4}

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.2

11. Convert the following value to a number that is not written in scientific notation: 2.3×10^6

- A) 23
- B) 23000000
- C) 2300000
- D) 0.0000023

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.2

12. Assuming that a mosquito holds 2.2×10^3 μL of blood, how much blood could 5.0×10^6 mosquitos hold, total?

- A) 1.1×10^{10} μL
- B) 2.3×10^3 μL
- C) 4.4×10^{-4} μL
- D) 5.0×10^6 μL

Ans: A
chaptername: 1
questiontype: Multiple Choice
section: 1.2

13. Assuming that there are 25 steps between each level of a skyscraper and 35 floors in the skyscraper, how many steps are there in the building, total?

- A) 60 steps
- B) 875 steps
- C) 49 steps
- D) 25 steps

Ans: B
chaptername: 1
questiontype: Multiple Choice
section: 1.2

14. Which is the largest?

- A) 1000 L
- B) 1.0×10^8 mL
- C) 1.0×10^{10} μ L
- D) 1.0×10^{12} nL

Ans: B
chaptername: 1
questiontype: Multiple Choice
section: 1.2

15. If there are 35,000,000,000,000 butterflies in the sky, how many moles of butterflies are in the sky?

- A) 2.1×10^{37} moles of butterflies
- B) 2.4×10^{23} moles of butterflies
- C) 1.7×10^{10} moles of butterflies
- D) 5.8×10^{-11} moles of butterflies

Ans: D
chaptername: 1
questiontype: Multiple Choice
section: 1.2

16. If it takes Jake 3.1 minutes to read a page in a novel, how many hours will it take him to read a 432-page novel, assuming he doesn't take any breaks?

- A) 1.3×10^3 hours
- B) 7.2 hours
- C) 22 hours
- D) 1.4×10^2 hours

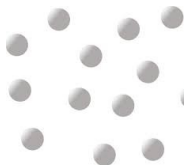
Ans: C

chaptername: 1

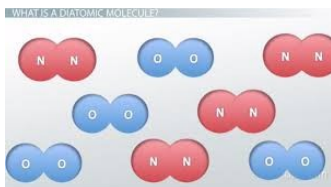
questiontype: Multiple Choice

section: 1.2

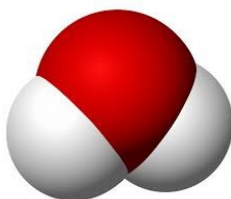
17. Which one of these does not represent a molecule?



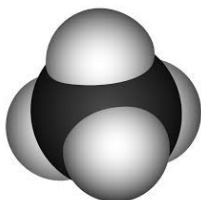
A)



B)



C)



D)

Ans: A

chaptername: 1

questiontype: Multiple Choice

section: 1.2

18. The value 345606000000 expressed using scientific notation would contain what value in the exponential part?

A) 10^6

B) 10^{11}

C) 10^{-11}

D) 10^{-7}

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.2

19. A value is expressed using scientific notation. The exponential part is written as 10^{-6} . What is true about this value?

- A) It is 60 times larger than one.
- B) It is a million times smaller than one.
- C) It is a million times larger than one.
- D) It is 60 times smaller than one.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.2

20. Scientific notation is used frequently in chemistry because

- A) scientists prefer to write numbers this way because they are easier to enter into a calculator.
- B) atoms and molecules are very small. Scientific notation makes it easier to refer to things that are very large or small.
- C) it is required in order to submit papers to international journals.
- D) it allows for the use of significant figures.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.2

21. Write the following in decimal format: 4.6×10^4

- A) 460000
- B) 4000
- C) 46000
- D) 4006

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.2

22. Which of these values represents the smallest number?

- A) 4.2×10^{-4}
- B) 7.6×10^{-6}
- C) 1.2×10^{-2}
- D) 3.3×10^{-3}

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.2

23. In the natureBOX for Chapter One, it was reported that NASA scientists had discovered a bacterium that could survive on what unusual material?

- A) phosphorus
- B) arsenic
- C) gasoline
- D) cytoplasm

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.2

24. Which of the following represents the largest number?

- A) 5.5×10^{-5}
- B) 9.6×10^{-6}
- C) 4.2×10^{-2}
- D) 1.1×10^{-15}

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.2

25. The base unit for length is the

- A) mole.
- B) meter.
- C) gram.
- D) liter.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.3

26. A picogram is

- A) 0.000000000001 times smaller than a gram.
- B) 1,000,000,000,000 times smaller than a gram.
- C) 1,000,000,000,000 times larger than a gram.
- D) 12 times smaller than a gram.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.3

27. A terabyte is

- A) 0.000000000001 times larger than a byte.
- B) 1,000,000,000,000 times smaller than a byte.
- C) 1,000,000,000,000 times larger than a byte.
- D) 12 times larger than a byte.

Ans: C
chaptername: 1
questiontype: Multiple Choice
section: 1.3

28. There are _____ microseconds in a day.
A) 8.4×10^{10}
B) A million
C) 10^{12}
D) 2.4×10^8

Ans: A
chaptername: 1
questiontype: Multiple Choice
section: 1.3

29. What is the abbreviation for the metric prefix Mega?
A) Mg
B) M
C) Ma
D) None of these

Ans: B
chaptername: 1
questiontype: Multiple Choice
section: 1.3

30. Which one of these would contain the least mass?
A) a nanogram
B) a Gigagram
C) a microgram
D) a femtogram

Ans: D
chaptername: 1
questiontype: Multiple Choice
section: 1.3

31. How many picometers are there in one meter?
A) 10^{15}
B) 10^6
C) 10^9
D) 10^{-3}
E) 10^{12}

Ans: E
chaptername: 1

questiontype: Multiple Choice
section: 1.3

32. Which one of these is an acceptable conversion factor for converting from meters to Gigameters?

- A) $\frac{1 \text{ m}}{10^9 \text{ Gm}}$
- B) $\frac{10^{15} \text{ m}}{1 \text{ Gm}}$
- C) $\frac{10^9 \text{ m}}{1 \text{ Gm}}$
- D) $\frac{10^{-9} \text{ m}}{1 \text{ Gm}}$

Ans: C
chaptername: 1
questiontype: Multiple Choice
section: 1.3

33. A car that has travelled 120,000,000,000,000,000 picometers has travelled how many kilometers?

- A) 120 km
- B) $1.2 \times 10^{26} \text{ km}$
- C) $1.2 \times 10^{20} \text{ km}$
- D) $1.2 \times 10^{32} \text{ km}$

Ans: A
chaptername: 1
questiontype: Multiple Choice
section: 1.3

34. What is the abbreviation for nanograms?

- A) nag
- B) pg
- C) Pg
- D) ng
- E) μg

Ans: D
chaptername: 1
questiontype: Multiple Choice
section: 1.3

35. What is the full name for the metric prefix GB?

- A) Gallonbig
- B) Gigabyte
- C) Giganticbyte
- D) Greatbig

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.3

36. How many seconds are in one Megasecond?

- A) 100,000
- B) 1,000,000
- C) 0.0000001
- D) 1,000,000,000

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.3

37. How many grams are in one kilogram?

- A) 1,000,000
- B) 0.001
- C) 1000
- D) 10

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.3

38. Convert 45,000,000 micrograms to Megagrams.

- A) 4.5×10^9 Mg
- B) 4.5×10^{-5} Mg
- C) 4.5×10^{-12} Mg
- D) 4.5×10^6 Mg

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.3

39. If there are 2.54 cm in one inch, how many inches are equivalent to 23,001 cm?

- A) 9.06×10^3 inches
- B) 2.30×10^4 inches
- C) 5.45×10^{27} inches
- D) 5.84×10^4 inches

Ans: A

chaptername: 1

questiontype: Multiple Choice

section: 1.3

40. The thermometer outside a hotel in London reads 15 °C. Which of the following outfits would a person be most comfortable in?

- A) A bathing suit
- B) A very thick, insulated snowsuit
- C) A winter coat, hat and gloves
- D) A light jacket

Ans: D

chaptername: 1

questiontype: Multiple Choice

section: 1.4

41. Which of the following objects fills the greatest volume?

- A) A swimming pool that holds 25,000 L of water
- B) A lake that holds 35,000,000 mL of water
- C) The portion of a stream that holds 35 megaliters of water
- D) A marsh that contains 4.5×10^{20} nL of water

Ans: D

chaptername: 1

questiontype: Multiple Choice

section: 1.4

42. A recipe calls for 725 grams of sugar. How many ounces of sugar is this?

- A) 1.60
- B) 25.6
- C) 0.626
- D) 1.16×10^4

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.4

43. A dumbbell at a gym in Denver weighs 12 pounds. Which statement is true?

- A) The dumbbell will weigh the same on Mars.
- B) The dumbbell will have less mass on Mars.
- C) The dumbbell will have more mass on Mars.
- D) The dumbbell will weigh less on Mars.

Ans: D

chaptername: 1

questiontype: Multiple Choice

section: 1.4

44. The weather report for Paris says it will be 22 °C for the next few days. How warm is this in degrees Fahrenheit?

- A) 81 °F
- B) 72 °F
- C) -10 °F
- D) 44 °F

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.4

45. A bag of potato chips that weighs 5.2 ounces would weigh how many grams?

- A) 2.4×10^3 g
- B) 83 g
- C) 1.5×10^2 g
- D) 0.18 g

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.4

46. Measurements that are close to one another but not close to the true value are said to

- A) be accurate.
- B) be close to the standard.
- C) be precise.
- A) have a lot of significant figures.

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.5

47. The height of a window is measured by four different people. The manufacturer states that the window is exactly 82.0 cm high. Alan determines that the window is 81.9 cm high. Bob determines it is 82.2 cm high. Caroline determines it is 75.0 cm high. Donna determines that the window is 82.1 cm high. Which of the following statements is true?

- A) Alan and Bob are accurate and precise. Caroline and Donna are neither accurate nor precise.
- B) Alan, Bob and Donna are accurate and precise. Caroline is neither accurate nor precise.
- C) None of the four measurements are accurate but Bob and Donna are precise.
- D) Alan and Donna are accurate but not precise.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.5

48. Your friend, Evan, went to Europe and told you the temperature was about 22 degrees every day. Assuming that he was in a country that uses the metric system, choose the season he was most likely there.

- A) a typical week in spring or fall
- B) the middle of a heat wave in summer
- C) the coldest week of the winter
- D) a moderately cold week in winter

Ans: A

chaptername: 1

questiontype: Multiple Choice

section: 1.5

49. A standard is

- A) a measurement that has been taken 3 or more times.
- B) something for which a particular characteristic is known very precisely.
- C) a particular measurement subtracted from the average of all measurements.
- D) found by repeating a certain experiment multiple times.

Ans: B

chaptername: 1

questiontype: Multiple Choice

section: 1.5

50. Jim weighs himself on his personal scale 4 different times. The values he obtains are 155 pounds, 154 pounds, 155.5 pounds, and 155 pounds. On his doctor's scale he weighed 168 pounds. Based on these results we can say that his personal scale is

- A) Accurate and precise.
- B) Accurate but not precise.
- C) Precise but not accurate.
- D) Neither accurate nor precise.

Ans: C

chaptername: 1

questiontype: Multiple Choice

section: 1.5