

# TEST BANK

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# CHEM

In Your World STUDENT EDITION

## WHAT'S INSIDE:

A Student-Tested,  
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Introductory  
Chemistry

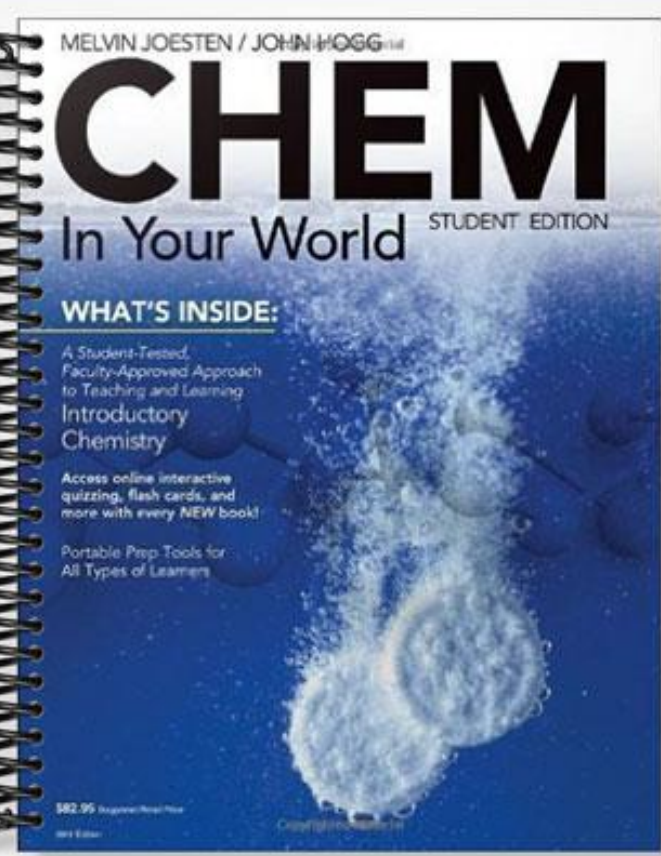
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## Chapter 2—The Chemical View of Matter

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### MULTIPLE CHOICE

1. Which of the following is not one of the common states of matter?
- solid
  - plasma
  - liquid
  - gas

ANS: B                    PTS: 1

2. A pure substance which can be decomposed into two or more pure substances is a(n)
- element
  - mixture
  - compound
  - atom

ANS: C                    PTS: 1

3. Which of the following is one of the classes of pure substances?
- compound
  - homogeneous mixture
  - solution
  - heterogeneous mixture

ANS: A                    PTS: 1

4. Which is not a mixture?
- pure water
  - mayonnaise
  - strawberry Kool-Aid drink
  - rock

ANS: A                    PTS: 1

5. Most samples of matter occur in nature as
- elements
  - compounds
  - homogeneous samples
  - mixtures

ANS: D                    PTS: 1

6. Separating a mixture of iron and sulfur can be done
- by filtration
  - dissolving in water
  - with a magnet
  - by burning

ANS: C                    PTS: 1

7. Which statement describes a physical property of oxygen?
- oxygen supports burning of gasoline

- b. oxygen has a density of 1.4 g/mL
- c. oxygen is required for human metabolism of food
- d. oxygen combines with iron causing the formation of rust

ANS: B                      PTS: 1

8. Which is a chemical property?
- a. boiling point
  - b. state
  - c. odor
  - d. flammability

ANS: D                      PTS: 1

9. A process is probably a chemical reaction if
- a. it produces light
  - b. a solid appears when two solutions are mixed
  - c. bubbles start to form when two substances are mixed
  - d. all of these

ANS: D                      PTS: 1

10. Which of the following is not a chemical change?
- a. burning charcoal
  - b. rusting iron
  - c. melting ice
  - d. baking bread

ANS: C                      PTS: 1

11. Which term describes energy?
- a. motion
  - b. heat
  - c. light
  - d. all of these

ANS: D                      PTS: 1

12. Alfred Nobel \_\_\_\_\_?
- a. discovered dynamite
  - b. proposed the metric system
  - c. developed the STM, scanning tunneling microscope
  - d. discovered kinetic energy

ANS: A                      PTS: 1

13. Which mixture is heterogeneous?
- a. salt and water
  - b. water and oil
  - c. sweetened hot tea
  - d. Ivory soap bar

ANS: B                      PTS: 1

14. The element whose name is derived from the Latin *aurum*, meaning shining dawn
- a. gold

- b. aluminum
- c. silver
- d. chromium

ANS: A                      PTS: 1

15. The symbol for magnesium is
- a. Ma
  - b. Mg
  - c. Mm
  - d. Mn

ANS: B                      PTS: 1

16. Which of the following elements is a metal?
- a. Ca, calcium
  - b. Na, sodium
  - c. Hg, mercury
  - d. all of these

ANS: D                      PTS: 1

17. Sublimation is a characteristic physical property of
- a. chlorine (Cl<sub>2</sub>, liquid)
  - b. oxygen (O<sub>2</sub>, gas)
  - c. bromine (Br<sub>2</sub>, liquid)
  - d. iodine (I<sub>2</sub>, solid)

ANS: D                      PTS: 1

18. What information is not provided by the formula, C<sub>4</sub>H<sub>10</sub>, for butane?
- a. butane is an organic compound
  - b. the molecular formula
  - c. the relative number of atoms of each kind
  - d. the shape of the molecule

ANS: D                      PTS: 1

19. Which of the following sets, is a list of the symbols for an element and a compound (in that order)?
- a. Mg, CO
  - b. CO, CO<sub>2</sub>
  - c. CO, Co
  - d. H<sub>2</sub>O<sub>2</sub>, P

ANS: A                      PTS: 1

20. Which of the following sets, is a list of the symbols for:  
lead, a compound of equal parts hydrogen and oxygen, and elemental oxygen?
- a. PB, H<sub>2</sub>O<sub>2</sub>, O
  - b. Pb, HO, O
  - c. Pb, H<sub>2</sub>O<sub>2</sub>, O<sub>2</sub>
  - d. PB, HO, O<sub>2</sub>

ANS: C                      PTS: 1

21. In the balanced equation,  $2 \text{Al} + 6 \text{HCl} \rightarrow 2 \text{AlCl}_3 + 3 \text{H}_2$ , the sum of the coefficients of the reactants is

- a. 5
- b. 8
- c. 13
- d. none of these

ANS: B                      PTS: 1

22. The equation,  $2 \text{C(s)} + \text{O}_2\text{(g)} \rightarrow 2 \text{CO(g)}$ , tells us
- a. the number of atoms of each kind in reactants and products is the same
  - b. carbon monoxide (CO) is a product
  - c. two atoms of carbon undergo reaction
  - d. all of these

ANS: D                      PTS: 1

23. How does the known number of nonmetals compare to that of metals?
- a. there are fewer metals
  - b. there are an equal number of each
  - c. there are fewer nonmetals
  - d. unknown because not all metals and nonmetals have been discovered

ANS: C                      PTS: 1

24. What prefix is the largest?
- a. mega
  - b. centi
  - c. micro
  - d. kilo

ANS: A                      PTS: 1

25. A person weighs 165 lbs. What is the weight in kilograms if  $2.2 \text{ lbs} = 1 \text{ kg}$ ?
- a.  $165 \times 2.2$
  - b.  $165 \div 2.2$
  - c.  $2.2 \div 165$
  - d.  $165 + 2.2$

ANS: B                      PTS: 1

26. Which prefix has the meaning  $10^{-3}$ ?
- a. mega
  - b. nano
  - c. centi
  - d. milli

ANS: D                      PTS: 1

27. How many milligrams are there in 10 grams?
- a.  $10^3$
  - b.  $10^{-6}$
  - c.  $10^{-3}$
  - d.  $10^4$

ANS: D                      PTS: 1

28. The quantity  $10^{-9}$  (one billionth) is designated by the prefix

- a. pico
- b. nano
- c. centi
- d. mega

ANS: B                      PTS: 1

29. Convert 15 L of gasoline to gallons.  $1.06 \text{ qt} = 1 \text{ L}$  ;  $4 \text{ qts} = 1 \text{ gal}$

- a.  $(15) (1.06/1) (1/4)$
- b.  $(15) (1/1.06) (4/1)$
- c.  $(15) (1.06/1) (4/1)$
- d.  $(15) (1/1.06) (1/4)$

ANS: A                      PTS: 1

30. An example of a homogeneous mixture is

- a. oil in water
- b. a salt water solution
- c. a suspension
- d. a pure substance

ANS: B                      PTS: 1

31. Which of the following is not a pure substance?

- a. pure gold
- b. clean air
- c. refined sugar
- d. distilled water

ANS: B                      PTS: 1

32. Which state of matter is composed of charged particles which are dramatically affected by electric and magnetic fields?

- a. solids
- b. liquids
- c. gases
- d. plasmas

ANS: D                      PTS: 1

33. How many categories of pure substances exist?

- a. 2
- b. 3
- c. thousands
- d. about 100

ANS: A                      PTS: 1

34. A pure substance which can be decomposed into two or more pure substances is a(n)

- a. element
- b. compound
- c. mixture
- d. colloid

ANS: B                      PTS: 1

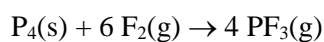
35. For which of the following is it necessary that there be a definite composition which cannot vary?
- mixture
  - solution
  - compound
  - colloid

ANS: C                      PTS: 1

36. How many phosphorus atoms are in the formula  $\text{H}_3\text{PO}_4$ ?
- 4
  - 3
  - 7
  - 1

ANS: D                      PTS: 1

37. How many chemical formulas are in this chemical equation?



- 2
- 3
- 4
- 11

ANS: B                      PTS: 1

38. Which of the following is an SI unit?
- pound
  - kilogram
  - millimeter
  - calorie

ANS: B                      PTS: 1

39. Potential energy is defined as
- heat energy
  - energy associated with motion
  - stored energy
  - the ability to do work

ANS: C                      PTS: 1

40. Which of the following is a physical change?
- souring of milk
  - ripening of fruit
  - frying an egg
  - melting

ANS: D                      PTS: 1

41. The simplest form of matter is a(n)
- element
  - mixture
  - compound
  - solution

ANS: A                    PTS: 1

42. Which is a compound?
- a. mercury
  - b. blood
  - c. sugar
  - d. air

ANS: C                    PTS: 1

43. How would you separate a mixture of salt, sand, and water?
- a. by filtration, followed by evaporation
  - b. freezing, followed by melting
  - c. separating with tweezers, followed by evaporation
  - d. by filtration, followed by burning

ANS: A                    PTS: 1

44. Which is a physical property?
- a. freezing point
  - b. color
  - c. odor
  - d. all of the above

ANS: D                    PTS: 1

45. Which of the following is an example of a chemical change?
- a. boiling water
  - b. iodine sublimating
  - c. barbecuing a steak
  - d. breaking a piece of glass

ANS: C                    PTS: 1

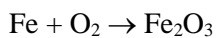
46. What element has the symbol Cu?
- a. cobalt
  - b. carbon
  - c. copper
  - d. chromium

ANS: C                    PTS: 1

47. Identify the nonmetal?
- a. Fe
  - b. Na
  - c. S
  - d. Ag

ANS: C                    PTS: 1

48. What is the coefficient in front of iron when the following equation is balanced?



- a. 1
- b. 2
- c. 4
- d. 6



ANS: C                    PTS: 1

49. How many millimeters are in 100 cm?

- a. 10
- b. 1000
- c. 100
- d. 1

ANS: B                    PTS: 1

50. Which of the following has the highest kinetic energy?

- a. boulder on the top of hill
- b. water behind a dam
- c. a ball falling from a 3 story building
- d. a piece of wood

ANS: C                    PTS: 1