Name _____Date _____ Hour _____

Test 2A Matter, Atoms, and the Mole (100 Points)

Multiple Choice: Read the question carefully. There is only one correct answer (3 points each).

1. The sum of protons and neutrons in the nucleus is called the
   a. atomic number. b. mass number.
   c. mass weight. d. atomic weight.

2. The amount of space an object takes up is its
   a. volume. b. density.
   c. mass. d. weight

3. A force of attraction of all objects on all other objects is called
   a. electromagnetic force. b. strong force.
   c. weak force. d. gravity.

4. An example of a physical change is
   a. baking a cake. b. breaking a glass.
   c. reacting sodium with chlorine. d. burning wood.

5. The triple-beam balance is used for measuring the
   a. mass of solid objects. b. volume of liquids.
   c. dimensions of solid objects. d. all of the above.

6. A graduated cylinder measures the volume of both liquid and irregular objects. Objects are measured in
   a. millimeters. b. milliliters.
   c. centigrams. d. centiliters.

7. Molybdenum has an atomic number of 42 and an atomic mass of 95.94 u. How many electrons does it have?
   a. 42 b. 54
   c. 53 d. 43

8. A measurement is said to have good precision if it
   a. agrees closely with an accepted standard. b. agrees closely with similar measurements.
   c. has a small number of significant figures. d. has a large number of significant figures.

9. An example of a chemical change is
   a. burning paper. b. dissolving sugar in tea.
   c. mixing alcohol and water. d. melting ice.

10. The basic unit of volume in the metric system is the
    a. meter. b. kilogram.
    c. liter. d. cubic centimeters.

11. The simplest pure substances that cannot be broken down into any simpler substances by heating or chemical reactions are called
    a. compounds. b. molecules.
    c. elements. d. bonds.

12. Iodine has an atomic number of 53 and an atomic mass of 124.905 u. How many neutrons does it have?
    a. 53 b. 72
    c. 71 d. 52

13. All liquids have
    a. definite shape and definite volume. b. no definite shape, but definite volume.
    c. no definite shape or definite volume. d. definite shape, but no definite volume.

Short Answer questions: Please fill in the blanks with the most appropriate answer. Write the units where needed. Each question is worth 2 points.

14. The standard for atomic mass is _____ .

15. _____ is the process by which moisture forms on the outside of a cold glass.

16. Give one of the indications of chemical change. _____

    _____

17. The mass number of an electron is _____ u.

18. A mixture that does not appear to be the same throughout is called _____.

19. There are _____ centimeters in a meter stick.

20. There are _____ grams and _____ milligrams in a kilogram.

21. A rectangular block of wood is measured with a metric ruler. Its dimensions are 12.50cm, 9.65cm, and 3.0cm. What is its volume? _____

22. Cheney Lake's water level has dropped several feet due to the unusually dry Kansas summer. This is due to the phase called _____ .

Definitions: Each definition is worth 2 points. Be specific.

23. gram atomic weight: _____

    _____

24. atomic number: _____

    _____

Using a periodic table determine: Each worth 2 points

25. atomic number of Zn _____

26. number electrons in Ar _____

27. atomic mass of Cl _____

28. mass number of Fe _____

29. number neutrons in Pt _____

30. gram atomic weight of Ni _____

Calculations: Calculate the correct answer to the correct significant figure. Please show your work. Each problem is worth 3 points.

31. 5932m = _____ km

32. Convert 1 578 300 to scientific notation.

_____

33. How many grams are in 1.00 mole of Li?

_____

34. How many moles are represented by 40.1 g Ca?

_____

35. How many grams are in 4.50×10^{15} atoms of silicon?

_____

36. How many atoms are in 5.000 moles of silver?

_____

37. How many moles are in 0.56 grams of potassium?

_____

38. An insect masses a total of 300.0mg, .0412g, and .000078kg. What is the combined mass in milligrams?

_____

39. The volume of a rectangle is measured to be 1.70m by 106.0cm by .0004032km. What is its volume in centimeters?

_____

Name _____Date _____ Hour _____

Test 2B Matter, Atoms, and the Mole (100 Points)

Multiple Choice: Read the question carefully. There is only one correct answer (3 points each).

1. A force of attraction of all objects on all other objects is called
   a. electromagnetic force. b. strong force.
   c. weak force. d. gravity.

2. An example of a physical change is
   a. baking a cake. b. breaking a glass.
   c. reacting sodium with chlorine. d. burning wood.

3. Molybdenum has an atomic number of 42 and an atomic mass of 95.94 u. How many electrons does it have?
   a. 42 b. 53
   c. 41 d. 52

4. A measurement is said to have good precision if it
   a. agrees closely with an accepted standard. b. agrees closely with similar measurements.
   c. has a small number of significant figures. d. has a large number of significant figures.

5. The simplest pure substances that cannot be broken down into any simpler substances by heating or chemical reactions are called
   a. compounds. b. molecules.
   c. elements. d. bonds.

6. Iodine has an atomic number of 53 and an atomic mass of 124.905 u. How many neutrons does it have?
   a. 53 b. 72
   c. 71 d. 52

7. An example of a chemical change is
   a. burning paper. b. dissolving sugar in tea.
   c. mixing alcohol and water. d. melting ice.

8. The basic unit of volume in the metric system is the
   a. meter. b. kilogram.
   c. liter. d. cubic centimeters.

9. The triple-beam balance is used for measuring the
   a. mass of solid objects. b. volume of liquids.
   c. dimensions of solid objects. d. all of the above.

10. A graduated cylinder measures the volume of both liquid and irregular objects. Objects are measured in
   a. millimeters. b. milliliters.
   c. centigrams. d. centiliters.

11. All liquids have
    a. definite shape and definite volume.
    b. no definite shape, but definite volume.
    c. no definite shape or definite volume.
    d. definite shape, but no definite volume.

12. The sum of protons and neutrons in the nucleus is called the
    a. atomic number.
    b. mass number.
    c. mass weight.
    d. atomic weight.

13. The amount of space an object takes up is its
    a. volume.
    b. density.
    c. mass.
    d. weight

Short Answer questions: Please fill in the blanks with the most appropriate answer. Write the units where needed. Each question is worth 2 points.

14. The relative atomic mass of an electron is _____.

15. _____ is the process by which water changes into water vapor by the addition of heat.

16. Give one of the three indications of chemical change. _____

    _____

17. The charge of a neutron is _____ .

18. A mixture that does appear to be the same throughout is called _____.

19. There are _____ millimeters in a meter stick.

20. A mole equals _____ atoms.

20. There are _____ grams and _____ milligrams in 5 kilograms.

21. A rectangular block of wood is measured with a metric ruler. Its dimensions are 19.6cm, 4.350cm, and 8.00cm. What is its volume? _____

22. An object has a mass of 50.00g, 850mg and .60g. The total mass of the object is _____ grams.

Definitions: Each definition is worth 2 points. Be specific.

23. mass number: _____

    _____

24. atomic mass: _____

    _____

Using a periodic table determine: Each worth 2 points

25. number protons in Cl _____
26. number electrons in Ne _____
27. number neutrons in Li _____
28. mass number of Ni _____
29. number neutrons in Au _____
30. gram atomic weight of Cr _____

Calculations: Calculate the correct answer to these problems. Please show your work. Each problem is worth 3 points.

31. 6471m = _____ km

32. Convert to scientific notation 0.000 000 8910 .

_____

33. How many moles do 3.25 X 10^5 g Pb represent?

_____

34. How many grams are in 2.57 moles of S?

_____

35. What is the mass, in grams, of .500 moles of magnesium?

_____

36. How many atoms are in 0.56 grams of potassium?

_____

37. How many grams are in 4.50×10^{15} atoms of silicon?

_____

38. A rodent masses a total of 800.0mg, .090g, and .000064kg. What is the combined mass in milligrams?

_____

39. The volume of a rectangle is measured to be 1.65m by 250.0cm by .00030km. What is its volume in centimeters?

_____

Name _____Date _____ Hour _____

Test 2C Matter, Atoms, and the Mole (100 Points)

Multiple Choice: Read the question carefully. There is only one correct answer (3 points each).

1. Molybdenum has an atomic number of 42 and an atomic mass of 95.94 u. How many electrons does it have?
   a. 42 b. 53
   c. 41 d. 52

2. A measurement is said to have good precision if it
   a. agrees closely with an accepted standard. b. agrees closely with similar measurements.
   c. has a small number of significant figures. d. has a large number of significant figures.

3. An example of a chemical change is
   a. burning paper. b. dissolving sugar in tea.
   c. mixing alcohol and water. d. melting ice.

4. The basic unit of volume in the metric system is the
   a. meter. b. kilogram.
   c. liter. d. cubic centimeters.

5. The triple-beam balance is used for measuring the
   a. mass of solid objects. b. volume of liquids.
   c. dimensions of solid objects. d. all of the above.

6. A graduated cylinder measures the volume of both liquid and irregular objects. Objects are measured in
   a. millimeters. b. milliliters.
   c. centigrams. d. centiliters.

7. The simplest pure substances that cannot be broken down into any simpler substances by heating or chemical reactions are called
   a. compounds. b. molecules.
   c. elements. d. bonds.

8. Iodine has an atomic number of 53 and an atomic mass of 124.905 u. How many neutrons does it have?
   a. 53 b. 72
   c. 71 d. 52

9. All liquids have
   a. definite shape and definite volume. b. no definite shape, but definite volume.
   c. no definite shape or definite volume. d. definite shape, but no definite volume.

10. The sum of protons and neutrons in the nucleus is called the
    a. atomic number. b. mass number.
    c. mass weight. d. atomic weight.

11. The amount of space an object takes up is its
    a. volume. b. density.
    c. mass. d. weight

12. A force of attraction of all objects on all other objects is called
    a. electromagnetic force. b. strong force.
    c. weak force. d. gravity.

13. An example of a physical change is
    a. baking a cake. b. breaking a glass.
    c. reacting sodium with chlorine. d. burning wood.

Short Answer questions: Please fill in the blanks with the most appropriate answer. Write the units where needed. Each question is worth 2 points.

14. The atomic mass of an electron is _____ u and the atomic mass of a neutron is _____u.

15. _____ is the process by which solids change into gases by the addition of heat.

16. Give all four indications of chemical change. _____

    _____

17. The charge of a neutron is _____ .

18. A heterogeneous mixture appears _____.

19. A meter stick has _____ mm, and _____ cm.

20. 6.02×10^{23} is _____ number and is the quantity of _____ of atoms.

21. A rectangular block of wood is measured with a metric ruler. Its dimensions are 19.6cm, 4.350cm, and 8.00cm. What is its volume? _____

22. An object has a mass of 50.00g, 850mg and .60g. The total mass of the object is _____ grams.

Definitions: Each definition is worth 2 points. Be specific.

23. atomic number: _____

    _____

24. gram atomic weight: _____

    _____

Using a periodic table determine: Each worth 2 points

25. number protons in Rb _____

26. number electrons in Hg _____

27. number neutrons in Pb _____

28. mass number of Ag _____

29. number neutrons in Kr _____

30. gram atomic weight of Co _____

Calculations: Calculate the correct answer to these problems. Please show your work. Each problem is worth 3 points.

31. 9.386m = _____ km

32. Convert to scientific notation 0.000 069 760 .

_____

33. How many moles are there in 0.0316 g of potassium?

_____

34. How many grams are in 0.918 moles of platinum?

_____

35. What is the mass, in grams, of 1.490 moles of magnesium?

_____

36. How many atoms are in 3.49 grams of manganese?

_____

37. How many grams are in 8.1×10^{18} atoms of cesium?

_____

38. A rodent has a total mass of 69.7mg, .196g, and .000018kg. What is the combined mass in milligrams?

_____

39. The volume of a rectangle is measured to be 0.892m by 34.1cm by .00057km. What is its volume in centimeters?

_____