General Chemistry
Mr. MacGillivray
Test, Chapters 2 & 3

I. Matching

	Column A	Column B
_____	1. solid	A. Describes a mixture that does not appear the same throughout
_____	2. element	B. A change in which the identity of the substance does not change
_____	3. gas	C. A physical combination of two or more substances
_____	4. liquid	D. Phase of matter which has neither a definite shape nor a definite volume
_____	5. matter	E. Describes a substance which appears to have the same composition throughout
_____	6. mixture	F. Phase of matter which has both a definite shape and a definite volume
_____	7. physical change	G. The simplest type of pure substance
_____	8. chemical change	H. A change in which a new substance is produced
_____	9. heterogeneous	I. Phase of matter which has no definite shape but has a definite volume
_____	10. homogeneous	J. Anything that has mass and takes up space

II. Multiple Choice

11. Which of the following is a physical property?
    A. Color
    B. Mass
    C. Freezing point
    D. All of these

12. Which of the following is an example of a physical change?
    A. Toasting bread
    B. Cooking a hamburger
    C. Digesting a banana
    D. Melting butter

13. Which of the following is a compound?
    A. Carbon
    B. Hydrogen
    C. Oxygen
    D. Water

14. Which of the following is characteristic of a chemical change?
    A. Energy is absorbed or released
    B. A color change occurs
    C. An odor change occurs
    D. All of these

III. Matching

Column A	Column B
_____ 15. proton	A. the total number of protons and neutrons in the nucleus
_____ 16. atom	B. the weighted average mass of the atoms in a naturally-occurring sample of an element
_____ 17. mass number	C. 1/12th of the mass of a C-12 atom; approximately the mass of a proton or neutron
_____ 18. atomic mass unit	D. the number of protons in the nucleus of an atom
_____ 19. electron	E. atoms with the same number of protons but different numbers of neutrons
_____ 20. isotopes	F. negatively-charged subatomic particle
_____ 21. atomic number	G. the smallest particle of an element that retains the properties of that element
_____ 22. atomic mass	H. the central part of an atom, containing protons and neutrons
_____ 23. nucleus	I. subatomic particle with no charge
_____ 24. neutron	J. positively-charged subatomic particle

IV. Multiple choice

25. Which of the following is **NOT** a part of Dalton's atomic theory?
    A. All elements are composed of atoms
    B. Atoms of the same element are alike
    C. Atoms are always in motion
    D. Atoms that combine do so in simple whole-number ratios

26. The nucleus of an atom is:
    A. Negatively charged and has a low density
    B. Negatively charged and has a high density
    C. Positively charged and has a low density
    D. Positively charged and has a high density

27. Dalton theorized that atoms are indivisible and that all atoms of an element are identical. We now know that :
    A. Dalton's theories are completely correct
    B. Atoms of an element can have different numbers of protons
    C. Atoms are divisible
    D. All atoms of an element are not identical but they must all have the same mass number

28. The number of neutrons in the nucleus of an atom can be calculated by:
    A. Adding together the numbers of protons and electrons
    B. Subtracting the number of protons from the number of electrons
    C. Subtracting the number of protons from the mass number
    D. Adding the mass number to the number of protons

29. The sum of the protons and neutrons in an atom equals the:
    A. Atomic number
    B. Number of electrons
    C. Atomic mass
    D. Mass number

30. All atoms of the same element have the same:
    A. Number of protons
    B. Number of neutrons
    C. Mass number
    D. Atomic radius

31. Which of these statements is **FALSE**?
    A. Electrons have a negative charge
    B. Electrons have a mass of 1 amu
    C. The nucleus of an atom is positively charged
    D. The neutron is found in the nucleus of an atom

32. An atom of an element with atomic number 48 and mass number 120 contains:
    A. 48 protons, 48 electrons, and 72 neutrons
    B. 72 protons, 48 electrons, and 48 neutrons
    C. 120 protons, 48 electrons, and 72 neutrons
    D. 72 protons, 72 electrons, and 48 neutrons

33. How do the isotopes of hydrogen-2 and hydrogen-3 differ?
    A. H-3 has one more electron than H-2
    B. H-3 has two neutrons, H-2 does not
    C. H-3 has three protons, H-2 does not
    D. H-2 has no protons

34. The number 80 in the name bromine-80 represents:
    A. The atomic number
    B. The mass number
    C. The sum of the protons and electrons
    D. None of these

35. If E is the symbol for an element, which of the following symbols represent isotopes of the same element?

    1. $^{24}_{12}E$ 2. $^{24}_{13}E$ 3. $^{25}_{11}E$ 4. $^{25}_{12}E$

    A. 1 and 2
    B. 3 and 4
    C. 1 and 4
    D. 2 and 3

36. The temperature reading of -14 °C corresponds to a Kelvin reading of
    A. 297.6 K
    B. -287 K
    C. 287 K
    D. 259 K

37. What is the specific heat of a substance, given that a 10.0 g sample changes from 20.0 °C to 25 °C when it absorbs 35 J of heat?

A. $.4 \frac{J}{g\,°C}$

B. $0.96 \frac{J}{g\,°C}$

C. $0.80 \frac{J}{g\,°C}$

D. $0.70 \frac{J}{g\,°C}$

38. Rutherford's gold foil experiment suggested that

A. Atoms travel in orbits
B. Atoms travel in orbitals
C. Electrons are embedded in the atom's center
D. Atoms are mostly empty space

39. Joules and calories are both units used to measure

A. Heat
B. Temperature
C. Specific heat
D. Mass

40. The charge on the nucleus is

A. Positive
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not such a great question

1	2	3	4	5	6	7	8	9	10	11	12	13	14
F	G	D	I	J	C	B	H	A	E	D	D	D	D

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J	G	A	C	F	E	D	B	H	I	C	D	C

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C	D	A	B	A	B	B	C	D

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37

$Q = mC\Delta T$

$35\,J = (10.0\,g)(C)(5.°C)$

$\frac{35}{50} = C = 0.70\ J/g°C$

37 D

38 D

39 A

40 A