Masses Of Atoms (p. 512 – 515)

I. Atomic Mass

1. Identify the masses of each subatomic particle.

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Proton = 1.6726×10^{-24}

Neutron = 1.6749×10^{-24}

Electron = 9.1093×10^{-28}

2. Circle the letter of the expression that accurately compares masses of subatomic particles.

a. mass of 1 neutron = mass of 1 proton
b. mass of 2,000 neutrons = mass of 1 proton
c. mass of 1 electron = mass of 1 proton
d. mass of 1 neutron = mass of 1 electron

mass of 2,000 electrons = 1 proton

Solar System

3. An electron's mass is so small that it is negligible when determining atomic mass.

Circle One : True False

4. Define the term atomic mass unit (*amu*).

Atomic Mass Unit – one-twelfth the mass of a carbon atom

1 amu = 1 proton or 1 neutron

5. Define the term atomic number.

Atomic Number – the number of protons in an atom

6. Two atoms of the same element can have ~~different~~ same numbers of protons.

Circle One : True False

7. Circle the letters that identify quantities that are equal to an element's atomic number.

a. number of nuclei
b. number of protons
c. number of neutrons
d. number of electrons

→ (if neutral is assumed)

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8. Define the term mass number.

Mass Number – sum of the number of protons + neutrons in the nucleus of an atom

# of protons identifies the element

9. Two different elements can have the same atomic number.

Circle One : True False

10. Carbon with the mass number of 12 (Carbon-12) is the most common form of carbon.

Circle One : True False

Carbon-13 + Carbon-14 in lesser amounts in nature

II. Isotopes

1. Define the term isotopes.

Isotopes – atoms of the same element that have different numbers of neutrons

2. Atoms of a specific element always have the same number of neutrons.

Circle One : True False

(Neon-20, Neon-21, Neon-22)

3. Every atom of a given element has the same number of protons **&** electrons **.**

4. Every atom of a given element does not have the same number of neutrons **.**

5. How do you identify each isotope?

Name of element followed by mass number

6. All oxygen atoms have 8 protons. Circle the letter of the number of neutrons in an atom of oxygen-18.

a. 8
b. 9
c. 10
d. 18

7. Define the term average atomic mass.

Average Atomic Mass – weighted-average mass of the mixture of its isotopes

8. Complete the following table. (listed on periodic table of elements)

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Isotope	Boron-10	Boron-11	Magnesium-26
Atomic Number	5	5	12
Mass Number	10	11	26
# of Protons	5	5	12
# of Neutrons	5	6	14
# of Electrons	5	5	12