

This print-out should have 15 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering. The due time is Central time.

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**Mlib 76 0001**

01:16, general, multiple choice, > 1 min, fixed.

**001**

Hydrogen peroxide decomposes into water and oxygen when exposed to heat or light. A tightly capped bottle of hydrogen peroxide is placed on a balance and exposed to light for three weeks. The mass reading on the balance does not change. This is an example of

1. the Law of Conservation of Mass.
2. the Law of Definite Proportions.
3. the Law of Constant Composition.
4. the Law of Multiple Proportions.

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**Msci 05 0101**

02:02, general, multiple choice, > 1 min, fixed.

**002**

Which of the following was not a basic assumption of Dalton's atomic theory?

1. All elements are made up of atoms.
2. Atoms combine to form molecules.
3. All molecules of a compound have the same ratio of combining atoms.
4. Atoms are made up of protons, electrons, neutrons.
5. Atoms of different elements differ in their weights.

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**Mlib 02 0055**

02:03, general, multiple choice, > 1 min, fixed.

**003**

The discovery and characterization of cathode rays was important in the development of the

atomic theory because

1. it indicated that all matter contains protons.
2. it indicated that all matter contains alpha particles.
3. it indicated that all matter contained electrons.
4. None of the these is correct.
5. it led to the suggestion of the existence of the neutron.

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**Mlib 02 0092**

02:03, general, multiple choice, > 1 min, fixed.

**004**

Which scientist is associated with the discovery of the electron?

1. Dalton
2. Rutherford
3. Thomson
4. Millikan
5. Bohr

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**Mlib 02 0049**

02:03, general, multiple choice, > 1 min, fixed.

**005**

Rutherford's gold foil experiment demonstrated that

1. electrons must have quantized energy levels.
2. the positive charge in an atom must reside in a dense core much smaller than the atom.
3. Dalton was correct in claiming that atoms are hard, structureless spheres.
4. lead could be transformed into gold.

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**Mlib 02 0025**

02:04, general, multiple choice, &gt; 1 min, fixed.

**006**

How many electrons are there in a fluorine (F) atom?

1. 7
2. 10
3. 18
4. 19
5. 9

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**Mlib 76 0098**

02:04, general, multiple choice, &gt; 1 min, fixed.

**007**

The number of protons in an atom is called the

1. atomic number.
2. atomic mass.
3. atomic weight.
4. mass number.

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**Msci 05 0520**

02:04, general, multiple choice, &gt; 1 min, fixed.

**008**

Which of the following is FALSE?

1. The mass of a proton is much larger than the mass of an electron.
2. The mass of protons and neutrons are about the same.
3. The mass of neutrons and electrons are about the same.
4. The mass of a hydrogen atom is about the same as a proton.

**ChemPrin3e B 08 09**

02:05, general, multiple choice, &lt; 1 min, wording-variable.

**009**

Identify the isotope that has atoms with 12 neutrons, 10 protons, and 10 electrons.

1.  $^{22}\text{Ne}$
2.  $^{22}\text{Na}$
3.  $^{12}\text{Mg}$
4.  $^{10}\text{P}$
5.  $^{12}\text{Al}$
6.  $^{10}\text{S}$
7. None of these

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**Mlib 02 1021**

02:05, general, multiple choice, &gt; 1 min, fixed.

**010**

Give the nuclide symbol for an atom that has mass number 64 and 35 neutrons.

1.  $^{64}_{29}\text{Cu}$
2.  $^{64}_{35}\text{Cu}$
3.  $^{64}_{35}\text{Br}$
4.  $^{35}_{29}\text{Br}$
5.  $^{29}_{64}\text{Cu}$
6.  $^{35}_{64}\text{Cu}$
7.  $^{99}_{64}\text{Gd}$
8.  $^{29}_{64}\text{Gd}$
9.  $^{35}_{64}\text{Gd}$
10.  $^{99}_{35}\text{Br}$

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**Mlib 02 1053**

02:05, general, multiple choice, &gt; 1 min, fixed.

**011**

Isotopes have the same number of (neutrons, protons) with different numbers of (electrons, neutrons, protons).

1. protons; neutrons
2. neutrons; protons
3. protons; electrons
4. neutrons; electrons

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**Mlib 72 1002**

02:05, general, multiple choice, &gt; 1 min, fixed.

**012**The isotope  ${}_{29}^{65}\text{Cu}$  has

1. 36 neutrons and 29 protons.
2. 29 neutrons and 36 protons.
3. 29 neutrons and 65 protons.
4. 65 neutrons and 29 protons.
5. 29 neutrons and 29 protons.

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**Msci 05 0606**

02:05, general, multiple choice, &gt; 1 min, fixed.

**013**The number of fundamental particles in the  ${}_{64}^{160}\text{Gd}$  atom is

1. 160 neutrons, 64 protons, and 64 electrons.
2. 96 neutrons, 64 protons, and 64 electrons.
3. 64 neutrons, 160 protons, and 160 electrons.
4. 224 neutrons, 64 protons, and 64 electrons.

5. 128 neutrons, 96 protons, and 96 electrons.

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**Msci 05 0609**

02:05, general, multiple choice, &gt; 1 min, fixed.

**014**The uranium isotope is used in nuclear reactors and atomic bombs is  ${}^{235}\text{U}$ . How many neutrons are in an atom of  ${}^{235}\text{U}$ ?

1. 143
2. 235
3. 146
4. 238
5. 92

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**Msci 05 0603**

02:06, general, multiple choice, &gt; 1 min, fixed.

**015**

A hypothetical element consists of 3 isotopes with the following masses and natural abundances.

	Isotopic Mass Number	Natural Abundance %
1	39	78.8
2	40	18.1
3	41	3.1

What is the atomic weight?

1. 39.9
2. 39.2
3. 40.1
4. 40.9