

Study Guide : Atomic Structure

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some answers may be used more than once.

alike
created
different
Democritus

John Dalton
six sextillion
small
2000

atoms
indivisible
destroyed

- The atom was first thought of by a man named _____ more than _____ year ago.
- In Greek, the word *atomos* means _____.
- Matter that is indivisible cannot be _____.
- An English chemist named _____ presented a modern atomic theory.
- All elements are made of _____.
- Atoms of a given element are all _____.
- Atoms can not be _____ or _____ by chemical change.
- Atoms of _____ elements are different.
- Atoms are so _____ that we can not see them.
- There are _____ atoms in a drop of water.

MATCHING

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

Column A

- _____ 1. Democritus
_____ 2. matter
_____ 3. philosophers
_____ 4. *atomos*
_____ 5. atom

Column B

- a) a very small particle
b) Greek philosopher who named the atom
c) made up of atoms
d) people who think about things
e) Greek word for "indivisible"

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some answers may be used more than once.

outside
protons
nucleus

neutrons
atoms
smaller

same
negative
no

cancel out
electrons
positive

1. All matter is made of tiny parts called _____ .
2. The center part of an atom is called the _____ .
3. A nucleus is made up of _____ and _____ .
4. Electrons are found _____ the nucleus.
5. Electrons are _____ than protons or neutrons.
6. The main parts of an atom are _____ , _____ , and _____ .
7. Since protons have a _____ charge, and neutrons have _____ charge, the nucleus will have a _____ charge.
8. Electrons have a _____ charge.
9. An atom has the _____ number of protons and electrons.
10. The plus and minus charges of an atom _____ each other.

TRUE OR FALSE

In the space provided, write "true" if the sentence is true. Write "false" if the sentence is false.

- _____ 1. A proton is found outside the nucleus.
- _____ 2. A proton has a negative charge.
- _____ 3. A neutron has a positive charge.
- _____ 4. An electron has a negative charge.
- _____ 5. An electron is found inside the nucleus.

INTERPRETING ATOMIC DIAGRAMMS

Below and on the following page are diagrams of six different atoms. In the spaces provided to the right of each diagram, fill in the number of protons, neutrons, electrons, positive charges, negative charges, and the overall charge of each atom.

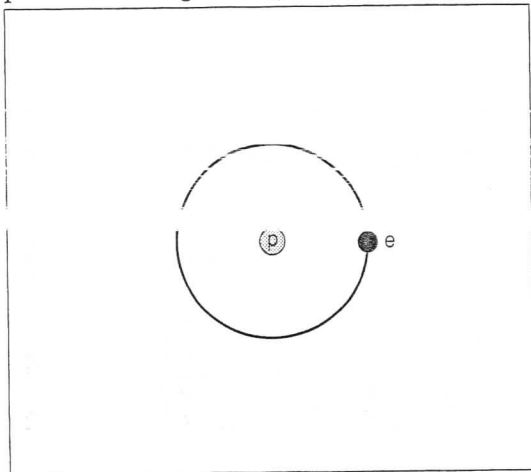


Figure D *Hydrogen*

Protons _____
 Neutrons _____
 Electrons _____
 Positive charge _____
 Negative charge _____
 Overall charge _____

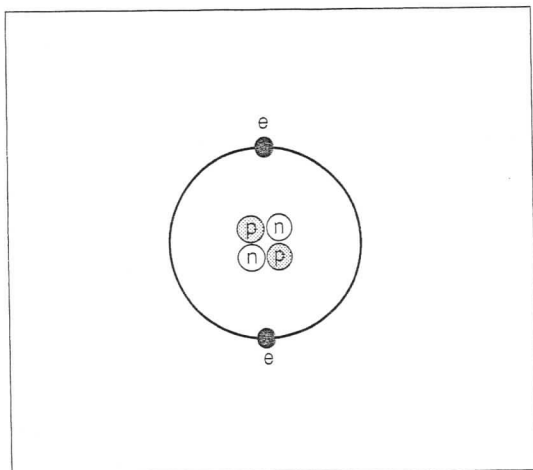


Figure E *Helium*

Protons _____
 Neutrons _____
 Electrons _____
 Positive charge _____
 Negative charge _____
 Overall charge _____

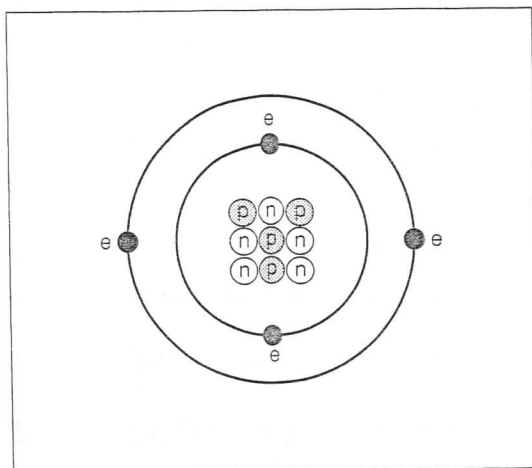


Figure F *Beryllium*

Protons _____
 Neutrons _____
 Electrons _____
 Positive charge _____
 Negative charge _____
 Overall charge _____

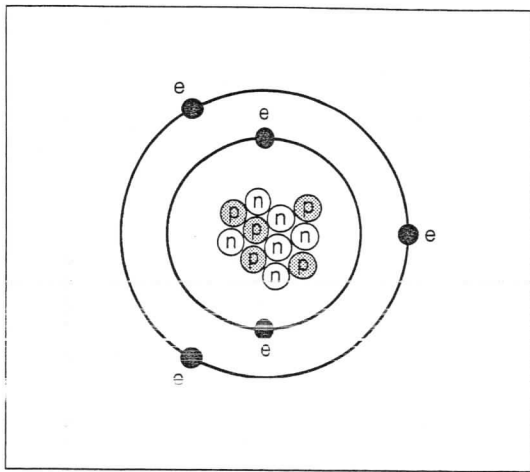


Figure G *Boron*

Protons _____
 Neutrons _____
 Electrons _____
 Positive charge _____
 Negative charge _____
 Overall charge _____

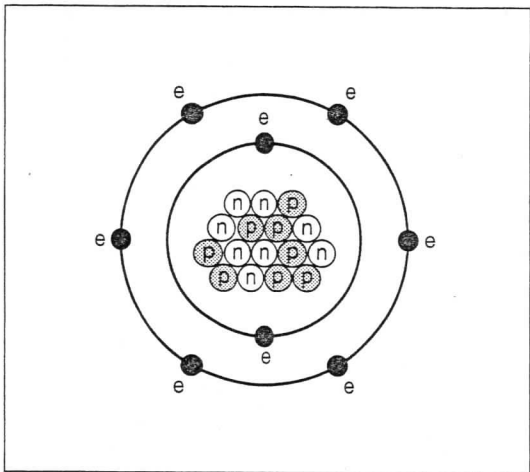


Figure H *Oxygen*

Protons _____
 Neutrons _____
 Electrons _____
 Positive charge _____
 Negative charge _____
 Overall charge _____

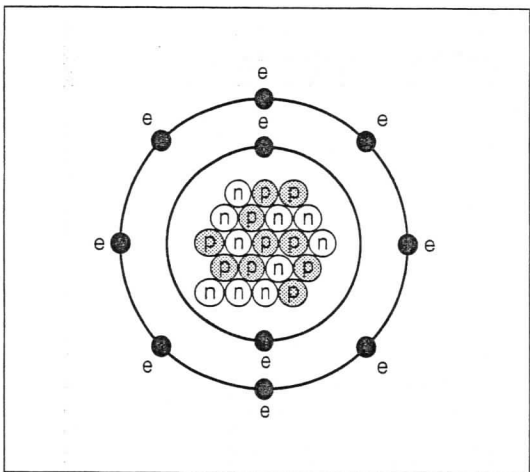


Figure I *Neon*

Protons _____
 Neutrons _____
 Electrons _____
 Positive charge _____
 Negative charge _____
 Overall charge _____

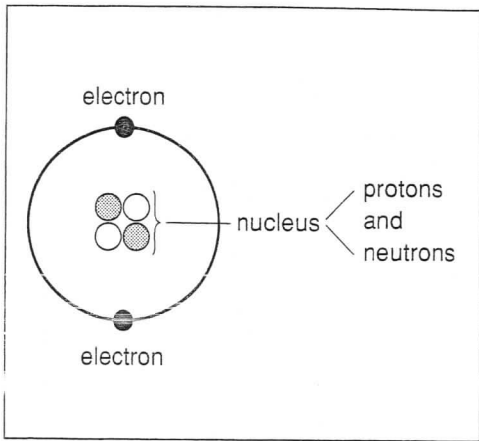


Figure A

NUCLEUS
 $\underbrace{\hspace{2cm}}$
PROTONS + NEUTRONS = ATOMIC MASS

Each proton has a value of one.

Each neutron has a value of one.

ATOMIC MASS, PLEASE

The diagrams below show six different atoms. Look at each one closely. Find the atomic mass of each atom. Write your answer in the space below the diagram.

Remember: atomic mass = protons + neutrons

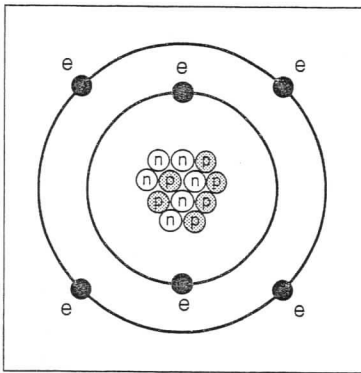


Figure B

Atomic Mass _____

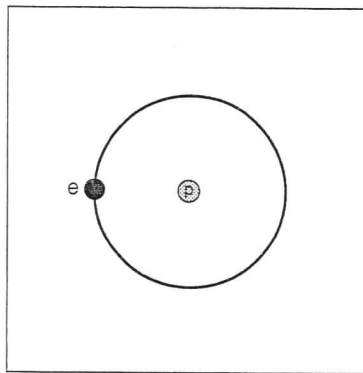


Figure C

Atomic Mass _____

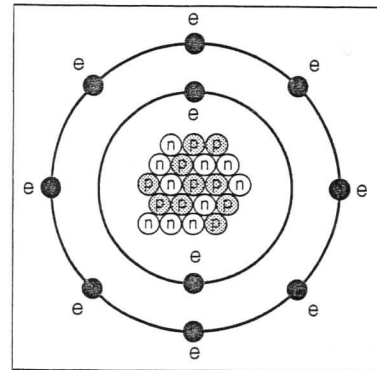


Figure D

Atomic Mass _____

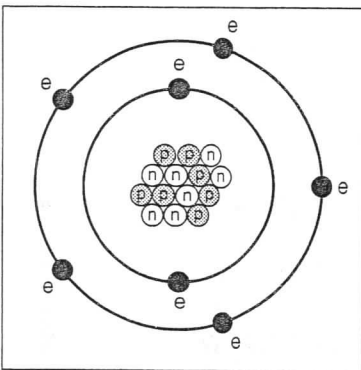


Figure E

Atomic Mass _____

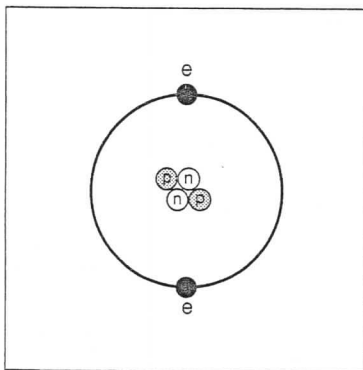


Figure F

Atomic Mass _____

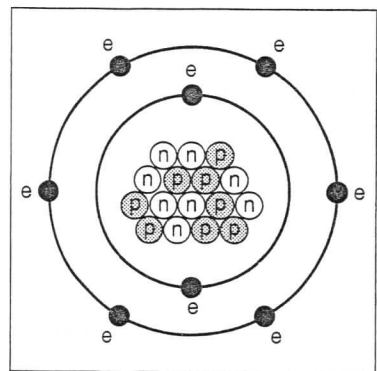


Figure G

Atomic Mass _____

COMPLETE THE CHART

Complete the chart by filling in the missing information.

	Kind of Matter	Protons	Neutrons	Atomic Mass	Electrons	Atomic Number
1.	Oxygen	8		16	8	8
2.	Sodium			23	11	
3.	Carbon		6	12		
4.	Phosphorus		16			15
5.	Potassium	19	20			
6.	Iron	26		56		
7.	Copper	29	35	64		
8.	Chlorine			35		17
9.	Boron	5	6			
10.	Aluminum		14	27		

TRUE OR FALSE

In the space provided, write "true" if the sentence is true. Write "false" if the sentence is false.

- _____ 1. An atom has no mass.
- _____ 2. An electron is the largest part of an atom.
- _____ 3. All atoms have the same mass.
- _____ 4. All protons have the same mass.
- _____ 5. All oxygen atoms have the same mass.
- _____ 6. An oxygen atom has the same atomic number as a hydrogen atom.
- _____ 7. To find the atomic mass of an atom, we add the protons and electrons.
- _____ 8. The atomic number of an atom is the number of neutrons it has.
- _____ 9. Atoms of the same kind that have different numbers of neutrons are called isotopes.
- _____ 10. Atomic number = atomic mass.