

14) A sample of element X contains 90% X-35 atoms, 8.0% X-37 atoms, and 2.0% X-38 atoms. The average atomic mass will be closest to which value?

a) 35 b) 36 c) 37 d) 38

15) What is the total number of electrons in an Mg^{+2} ion?

a) 10 b) 24 c) 2 d) 12

16) Which of the following electron configurations represents an atom in the excited state?

a) 2-8 b) 2-8-1 c) 2-6-1 d) 2-1

17) Which principal energy level of an atom contains an electron with the lowest energy?

a) 3 b) 4 c) 1 d) 2

18) The atomic mass of an element is defined as the weighted average mass of that element's

a) naturally occurring isotopes c) radioactive isotopes
b) least abundant isotope d) most abundant isotope

19) Compared to the entire atom, the nucleus of the atom is

a) smaller and contains most of the atom's mass c) larger and contains most of the atom's mass
b) smaller and contains little of the atom's mass d) larger and contains little of the atom's mass

20) What is the nuclear charge in an atom of boron?

a) +11 b) +6 c) +5 d) +12

21) What subatomic particle was discovered in the cathode ray tube experiment?

a) proton b) electron c) neutron d) graviton.

21) Complete the chart below: (9 pts.)

Substance	Atom or Ion?	# protons	# neutrons	# electrons	Atomic #	Mass number
Mg^{+2}						
Rb						
Cl^-						

22) What is the electron configuration for a neutral sulfur atom? **(1 pt.)**

23) What is the electron configuration for S^{2-} ? **(1 pt.)**

24) Based on the two given substances in question 25 and 26, how can you tell the difference between an atom and an ion? **(2 pts.)**

25) Draw **Bohr Diagrams** for the following substances **(1 pt. each)**:

magnesium

Na^+

26) Draw **Lewis Dot Diagrams** for the following substances **(1 pt. each)**:

carbon

S⁻²

27) What is the total number of valence electrons in an atom of Mg-26 in the ground state? (1 pt.)

28) What is the total number of kernel electrons in an atom of Mg-26 in the ground state? (1 pt.)

29) Write a possible electron configuration that could represent magnesium in the excited state. (1 pt.)

30)

Which of the following elements in the chart has a positive charge?

	Lithium (Li)	Calcium (Ca)	Carbon (C)	Fluorine (F)
Protons	3	20	6	9
Neutrons	3	21	7	9
Electrons	2	20	6	10

F. calcium (Ca)

G. carbon (C)

H. fluorine (F)

I. lithium (Li)