Review for TEST on Chapters 3, (Atomic Structure (3-1, 3-2, 3-3) – no details on radioactivity and nuclear reactions) and Ch 4 (Electron structure)

## Chapter 3

3-1

Atoms: smallest particle of an element that retains the chemical identity of that element

postulates of Dalton's atomic theory:

atoms of one element are all same

Different element=different atom

Each element composed of atoms

Atoms are neither created/destroyed in any chemical reaction

Given compound always has same relative numbers and kinds of atoms

## 3-2

How is atomic structure related to electricity

Atoms contain particles that have electrical charge

what did studies of cathode rays and radioactivity show of nucleus rutherford's alpha-scattering experiment, nucleus

- static electricity: comes from electrical charges that are not in motion •
- Franklin lightning kite-flying experiment: object could have one of two ٠ kinds of electric charge: +or-
- Electrical current: moving stream of electrical charges CO • 6.
- Cathode=negatively charged electrode •
- Anode=positively charge electrode •
- Radiation called cathode ray, tube called cathode ray tube/CRT •
- Complex version of a cathode ray tube=TV •
- Cathode rav-stream or particles, particles carried a negative charge
- Thomsor catoms were not in the balls but instead had a

Substructure, negative perticus=electrons

Millikan: charge and mass of electron

- Rutherford's experiment: how alpha particles interact with thin metal • foils
- Thomson's "plum-pudding" model= negative charges are distributed ٠ evenly throughout an atom's positively charged interior
- Rutherford's model= all of an atom's positive charge as well as most of its mass is concentrated in core at atom's center, nucleus

3-3

- 3 subatomic particles: protons, neutrons, electrons
- nucleus=P&N, space around nucleus=E
- electrons do not orbit nucleus in a well-defined path =>impossible to know exactly where an electron is at any given time
- E's positions=clouds
- Atomic #=# of P=atom's identity
- Ion= when an atom loses/gains one or more electrons and acquires a • net electrical charge
- Isotopes= same # of protons/atomic # but different # of neutrons/mass
- Symbol: mass number, element symbol, atomic number (mass at top)