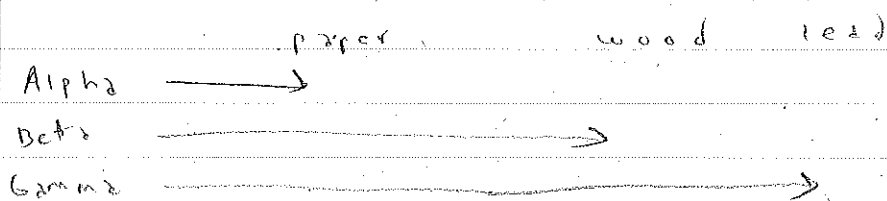


✓ (c1) ${}_{11}^{22}\text{Na} \rightarrow {}_{10}^{22}\text{Ne} + {}_1^0\text{e}$ is example of

positron decay

b/c Beta decay is B^-

positron decay is B^+



✓ (c2) (poll)

✓ (c3) (poll) Most Po is lost

- during first event

(more stuff, bigger the change)

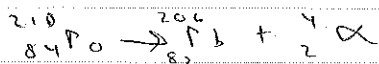
✓ (c4) (poll) what is relationship b/w amt of Po that decays in a given time period w/ amt of Po that you have at beginning of that time period.

- more Po you have, more Po decays

✓ (c5) (poll) Relationship b/w amt of Po lost and amt of Pb gained is

- Po dec by same amt that Pb inc

- rate of dec of reactant is equal but opposite of products b/c 1:1:1 ratio



Rate of change speed:

$$\frac{\Delta d}{\Delta t}$$

What is reaction rate?

- change in amt per change in unit time
- slope of graph of amt vs time

$$\frac{\Delta P_b}{\Delta t} = -\frac{\Delta P_o}{\Delta t} \quad \left. \vphantom{\frac{\Delta P_b}{\Delta t}} \right\} \text{equal, but opposite in sign}$$

Rate is some function of amt of reactant molecules

$$\frac{\Delta P_o}{\Delta t} \propto P_o \quad \text{; bigger amt, bigger rate}$$

Random process \rightarrow probability depends on amt

$$\frac{\Delta P_o}{\Delta t} = k P_o \quad \rightarrow \text{First order of kinetics}$$

half life - amt is the time it takes
half of the material to decay
- longer the half life, more stable

- (7) (p11) Start w/ 96 student isotopes. How many events would occur to end up w/ 6 student isotopes.

$$\boxed{-4}$$

$$96 \div 2$$

$$48 \div 2$$

$$24 \div 2$$

$$12 \div 2 = 6$$

half life - time required for level of radioactivity
to fall to its $\frac{1}{2}$ time

- c8) (pull) P-32 has half life of 14 days.
After 3 months what would be required
radioactivity of 1 millicurie of ATP,
labeled w/ P-32?
2 + $\frac{1}{2}$'s. pass?
start w/ 1 mC

$$\frac{1 \text{ mC}}{20} = 15.6 \text{ microcuries}$$