Alpha & Beta Decay

1. Write a nuclear equation for the alpha decay of $^{231}_{91}\mathrm{Pa}$.

$$^{231}_{91}\mathrm{Pa} \rightarrow {}^{4}_{2}\alpha + {}^{227}_{89}\mathrm{Ac}$$

2. Write a nuclear equation for the beta decay of $^{223}_{87}\mathrm{Fr}$.

$$^{231}_{87}\mathrm{Fr} \rightarrow {}^{0}_{-1}\beta + {}^{223}_{88}\mathrm{Ra}$$

3. Write a nuclear equation for the alpha decay of $^{149}_{62}\mathrm{Sm}$.

$$^{149}_{62}\mathrm{Sm} \rightarrow {}^{4}_{2}\alpha + {}^{145}_{60}\mathrm{Nd}$$

4. Write a nuclear equation for the beta decay of $^{165}_{61}\mathrm{Pm}$.

$$^{165}_{61}\mathrm{Pm} \rightarrow {}^{0}_{-1}\beta + {}^{165}_{62}\mathrm{Sm}$$

5. Write a nuclear equation for the alpha decay of $^{249}_{101}\mathrm{Md}$.

$$^{249}_{101}\mathrm{Md} \rightarrow {}^{4}_{2}\alpha + {}^{245}_{99}\mathrm{Es}$$

6. Write a nuclear equation for the beta decay of $^{146}_{62}\mathrm{Sm}$.

$$^{146}_{62}\mathrm{Sm} \rightarrow {}^{0}_{-1}\beta + {}^{146}_{63}\mathrm{Eu}$$

7. Write a nuclear equation for the beta decay of $^{198}_{85}\mathrm{At}$.

$$^{198}_{85}\mathrm{At} \rightarrow {}^{0}_{-1}\beta + {}^{198}_{86}\mathrm{Rn}$$

8. Write a nuclear equation for the alpha decay of $^{150}_{64}\mathrm{Gd}$.

$$^{150}_{64}\mathrm{Gd} \rightarrow {}^{4}_{2}\alpha + {}^{146}_{62}\mathrm{Sm}$$

9. Write a nuclear equation for the beta decay of $^{152}_{54}\mathrm{Xe}$.

$$^{152}_{54}\mathrm{Xe} \rightarrow {}^{0}_{-1}\beta + {}^{152}_{55}\mathrm{Cs}$$

10. Write a nuclear equation for the beta decay of $^{120}_{55}\mathrm{Cs}$.

$$^{152}_{55}\mathrm{Cs} \rightarrow {}^{0}_{-1}\beta + {}^{120}_{56}\mathrm{Ba}$$

Source: 3-4 Practice Problems, *Chemistry Connections* supplement (Prentice-Hall)