Nuclear chemistry 01 Name_____ Date_____ Period____

Write out or complete the following nuclear reactions:

1. A uranium-238 atom decays by emitting an alpha particle:
2. Potassium-40 decays beta emission.
3. Technetium-99 ($^{99}_{43}Tc$) decays by beta emission
4. Phosphorus-32 decays by beta emission
5. Francium-212 ($^{212}_{87}Fr$) decays by alpha emission.
6. Fluorine-18 decays to oxygen-18 by positron emission.
7. Sodium-24 decays by beta emission.
8. Krypton-76 absorbs a beta particle.
9. Aluminum-27 absorbs an alpha particle to form phosphorus and emits a neutron.
10. Nitrogen-14 absorbs an alpha particle to form oxygen and emits a proton.
11. When neptunium-239 decays, plutonium-239 is formed and a particle is emitted.
12. A particular atom absorbs a neutron to form uranium-236. No particle is emitted.

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13. _____ $\rightarrow$ $^{0}_{-1}e$ + $^{14}_{7}N$
14. _____ + $^{4}_{2}He$ $\rightarrow$ $^{12}_{6}C$ + $^{1}_{0}n$
15. $^{239}_{93}Np$ $\rightarrow$ $^{239}_{94}Pu$ + _____
16. $^{4}_{2}He$ + _____ $\rightarrow$ $^{240}_{94}Pu$ + $^{1}_{0}n$ + $^{1}_{0}n$
17. $^{1}_{0}n$ + _____ $\rightarrow$ $^{236}_{92}U$
18. $^{13}_{7}N$ $\rightarrow$ _____ + $^{0}_{+1}e$
19. _____ + $^{1}_{1}H$ $\rightarrow$ $^{12}_{6}C$ + $^{4}_{2}He$
20. _____ + $^{1}_{0}n$ $\rightarrow$ $^{3}_{1}H$ + $^{4}_{2}He$
21. $^{226}_{88}Ra$ $\rightarrow$ _____ + $^{222}_{86}Rn$
22. $^{18}_{9}F$ $\rightarrow$ _____ + $^{0}_{-1}e$
23. $^{49}_{24}Cr$ $\rightarrow$ _____ + $^{0}_{+1}e$
24. $^{239}_{94}Pu$ + _____ $\rightarrow$ $^{241}_{95}Am$ + $^{1}_{1}H$ + $^{1}_{0}$
25. $^{7}_{3}Li$ + $^{7}_{3}Li$ $\rightarrow$ $^{4}_{2}He$ + _____
26. $^{3}_{1}H$ + $^{2}_{1}H$ $\rightarrow$ _____ + $^{1}_{0}n$
27. $^{14}_{6}C$ $\rightarrow$ $^{14}_{7}N$ + _____
28. $^{9}_{4}Be$ + $^{4}_{2}He$ $\rightarrow$ $^{12}_{6}C$ + _____
29. $^{14}_{7}N$ + $^{4}_{2}He$ $\rightarrow$ _____ + $^{0}_{+1}e$
30. $^{26}_{12}Mg$ + $^{1}_{0}n$ $\rightarrow$ _____ + $^{0}_{+1}e$
31. $^{59}_{27}Co$ + $^{2}_{1}H$ $\rightarrow$ _____ + $^{0}_{+1}e$
32. $^{208}_{84}Po$ $\rightarrow$ _____ + $^{4}_{2}He$
