

Name : _____ Date : _____

Nuclear Chemistry Worksheet

Part A. Identify the following as alpha, beta, gamma, or neutron.

- 1_0n _____
- ${}^0_{-1}e$ _____
- ${}^4_2\text{He}$ _____
- ${}^0_0\gamma$ _____
- Nuclear decay with no mass and no charge _____
- An electron _____
- Least penetrating nuclear decay _____
- The most damaging nuclear decay to the human body _____
- Nuclear decay that can be stopped by skin or paper _____
- Nuclear decay that can be stopped by aluminum _____

Part B. Complete the following nuclear equations.

- ${}^{42}_{19}\text{K} \rightarrow {}^0_{-1}e + \underline{\hspace{2cm}}$
- ${}^{239}_{94}\text{Pu} \rightarrow {}^4_2\text{He} + \underline{\hspace{2cm}}$
- ${}^{42}_{19}\text{K} \rightarrow {}^0_{-1}e + \underline{\hspace{2cm}}$
- ${}^{235}_{92}\text{U} \rightarrow \underline{\hspace{2cm}} + {}^{231}_{90}\text{Th}$
- ${}^6_3\text{Li} \rightarrow {}^4_2\text{He} + \underline{\hspace{2cm}}$
- $\underline{\hspace{2cm}} \rightarrow {}^{142}_{56}\text{Ba} + {}^{91}_{36}\text{Kr} + 3 {}^1_0n$

Part C. Write the equations for the following processes.

- The alpha decay of radon - 198
- The beta decay of uranium - 237
- Positron emission from silicon - 26
- Sodium - 22 undergoes electron capture

Name : _____ Date : _____

Nuclear Chemistry Worksheet

Part A. Identify the following as alpha, beta, gamma, or neutron.

- 1_0n neutron
- ${}^{-1}_0e$ electron
- ${}^4_2\text{He}$ alpha
- ${}^0_0\gamma$ gamma
- Nuclear decay with no mass and no charge gamma
- An electron beta
- Least penetrating nuclear decay alpha
- The most damaging nuclear decay to the human body gamma
- Nuclear decay that can be stopped by skin or paper alpha
- Nuclear decay that can be stopped by aluminum beta

Part B. Complete the following nuclear equations.

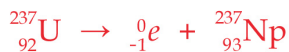
- ${}^{42}_{19}\text{K} \rightarrow {}^{-1}_0e + {}^{42}_{20}\text{Ca}$
- ${}^{239}_{94}\text{Pu} \rightarrow {}^4_2\text{He} + {}^{235}_{92}\text{U}$
- ${}^{42}_{19}\text{K} \rightarrow {}^{-1}_0e + {}^{42}_{20}\text{Ca}$
- ${}^{235}_{92}\text{U} \rightarrow {}^4_2\text{He} + {}^{231}_{90}\text{Th}$
- ${}^6_3\text{Li} \rightarrow {}^4_2\text{He} + {}^2_1\text{H}$
- ${}^{236}_{92}\text{U} \rightarrow {}^{142}_{56}\text{Ba} + {}^{91}_{36}\text{Kr} + 3 {}^1_0n$

Part C. Write the equations for the following processes.

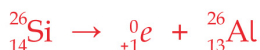
17. The alpha decay of radon – 198



18. The beta decay of uranium – 237



19. Positron emission from silicon – 26



20. Sodium – 22 undergoes electron capture

