

CHM 1020
Nuclear Chemistry
Homework Part 3

1. What is the mass and charge of gamma radiation?
2. Which decay product could penetrate almost a foot of lead?
3. How many grams of 200g of Au-198 would remain after two half-lives?
4. What is an isotope commonly used in nuclear reactors?
5. Which sub-atomic particle is usually released from the reaction?
6. Atoms of Uranium-235 and Uranium-238 differ by three _____.
7. In a radioactive nucleus, the electric force _____ the strong nuclear force.
8. How many protons are in a Tin-117 atom? ${}_{50}^{117}\text{Sn}$
9. How many neutrons are in a Tin-117 atom?
10. How many protons are in an Iodine-131 atom?
11. How many neutrons are in a Iodine-131 atom?
12. Plutonium-238 is an alpha emitter. What is the other product of the decomposition?



13. Strontium-81 is a beta emitter. What is the other product of the decomposition?
$${}_{38}^{81}\text{Sr} \rightarrow \quad + \quad {}_{-1}^0\text{e}$$
14. Please write an equation to describe the beta decay of Fe-59.
15. Please write an equation to describe the alpha decay of Po-218
16. Please write an equation to describe the beta decay of Ce-141.
17. Please write an equation to describe the alpha decay of Radon-220.
18. Please write an equation to describe the beta decay of Phosphorous-32.
19. Describe three ways to protect yourself from radiation.
20. Cobalt -60 has a half life of 11 minutes. At 11:00 am the doctor has 20 mg, how much is left if you arrive at 11:22?
21. Which type of radiation has the least penetrating power?
22. Which type of radiation has the most penetrating power?
23. Which of the following measures not only amount of radiation absorbed but also the biological effect of the radiation. (A) Curie. (B) RAD. (C) REM.