Nuclear Physics Practice Part 1:

1. Write the nuclear symbol for an alpha particle.

2. How many protons and how many neutrons are in an alpha particle?

3. How many nucleons are in an alpha particle?

4. What is the electric charge of an alpha particle?

5. Write the nuclear symbol for a beta particle.

6. How many protons and how many neutrons are in a beta particle?

7. How many nucleons are in a beta particle?

8. What is the electric charge of a beta particle?

9. Write the nuclear symbol for a calcium 42 nucleus.

10. How many protons and how many neutrons are in a calcium 42 nucleus?

11. How many nucleons are in a calcium 42 nucleus?

12. What is the electric charge of a calcium 42 nucleus?

13. Imagine you have a collection of nuclei and assorted other particles: 1 Nitrogen-15 nucleus, 2 alpha particles and 3 beta particles.

 A. How many protons do you have?

 B. How many neutrons do you have?

 C. How many electrons do you have?

 D. How many nucleons do you have?

 E. What is the combined charge of your collection?

14. Imagine you have a collection of nuclei and assorted other particles: 1 Nickel-56, 4 alpha particles and 2 beta particles.

 A. How many protons do you have?

 B. How many neutrons do you have?

 C. How many electrons do you have?

 D. How many nucleons do you have?

 E. What is the combined charge of your collection?

15. Imagine you have a collection of nuclei and assorted other particles: 2 $$, 5 $$ and 3 $$

 A. How many protons do you have?

 B. How many neutrons do you have?

 C. How many electrons do you have?

 D. How many nucleons do you have?

 E. What is the combined charge of your collection?

16. Write the equation for an alpha decay of a Technetium-98 nucleus.

17. Write the equation for an alpha decay of a Thallium-201 nucleus.

18. Write the equation for an alpha decay of a Magnesium-24 nucleus

19. A Molybdenum-98 nucleus undergoes alpha decay. What element is the daughter?

20. Write the equation for a beta decay of a zinc-70 nucleus

21. Write the equation of a beta decay for a sodium-24 nucleus.

22. A carbon nucleus undergoes beta decay. What species is the daughter?

23. A Bismuth-212 nucleus undergoes the following decay chain: alpha, beta, alpha, alpha, beta. Write the equations for each step in the chain. What is the final daughter?