

Nuclear Chemistry and Periodic Table Test Review

NAME THE TERM DESCRIBED BY THE FOLLOWING DEFINITIONS:

1. A positively charged ion is called a(n) _____. A negatively charged ion is called a(n) _____.
2. The lower, left-hand section of the periodic table that includes most of the elements.
3. The upper right-hand section of the periodic table.
4. The section of the periodic table that includes only the elements in the d-block.
5. The section of the periodic table that includes both the s-block and the p-block.
6. The process by which the core electrons partially block the attraction between the nucleus and the valence electrons.

WHICH ATOM HAS THE LARGER ATOMIC RADIUS?

7. C vs. Sn
8. Sr vs. In

RANK THESE ATOMS FROM SMALLEST TO LARGEST ATOMIC RADIUS.

9. Li, K, Cs, O
10. Fe, P, Ra, Ti

WHICH ATOM HAS THE LARGER 1ST IONIZATION ENERGY?

11. Fr vs. Ne
12. Na vs. Si

RANK THESE ATOMS FROM SMALLEST TO LARGEST 1ST IONIZATION ENERGY.

13. Ar, Xe, Ba, Sn
14. Mg, C, F, Sr

WHICH PARTICLE HAS THE LARGER RADIUS?

15. Mg vs. Mg²⁺
16. I vs. I⁻

WRITE EQUATIONS FOR THE FOLLOWING PROCESSES:

17. The beta decay of uranium-237
18. Positron emission from silicon-28
19. Sodium-23 undergoes electron capture
20. The alpha decay of radon-199

21. What is the difference between nuclear fusion and nuclear fission? Explain the advantages and disadvantages of choosing one method over the other as an energy source.
22. Name two uses for nuclear reactions.
23. Which type of nuclear radiation (beta particles, gamma rays, or alpha particles) can be blocked by...
 - a) a piece of paper
 - b) a piece of aluminum foil
 - c) a large block of concrete

HONORS ONLY:

24. A sample initially contains 60g of thorium-234. After 48 days only 7.5g remains. Determine the half life.
25. If 20.0g of element X remains after 72 days, determine the mass of the original sample. The half life of element X is 12 days.