

*Superconductivity Unit PreTest*

1. An atom reacts primarily based upon that atom's
  - A. electron arrangement
  - B. atomic mass
  - C. position on earth
  - D. gravitational pull
2. In our universe there is a vast diversity of materials, compounds, and atoms. This vast diversity is primarily based upon
  - A. the forces that hold molecules together
  - B. the number of isotopes that each atom has
  - C. The total number of protons in the largest atom of the material
  - D. The total mass of the molecules involved
3. In an electrically neutral atom, the number of \_\_\_\_\_ will equal the number of \_\_\_\_\_ .
  - A. protons, neutrons
  - B. neutrons, electrons
  - C. protons, electrons
  - D. protons and neutrons, electrons
4. An atom is electrically unbalanced when that atom gains or loses
  - A. protons
  - B. neutrons
  - C. electrons
  - D. photons
5. Elements are arranged into groups and families based upon their similarities in
  - A. proton number
  - B. electron arrangement
  - C. isotope numbers
  - D. physical appearance
6. Scientists collect and generate data about our universe by
  - A. direct observation
  - B. indirect observation
  - C. controlled experimentation
  - D. all of the above
7. Changes that take place in the scientific view of how the world works often occurs in with small modifications of our prior scientific knowledge.
  - A. true
  - B. false
8. Technological problems often create a demand for new scientific knowledge.
  - A. true
  - B. false
9. New technologies make it possible for scientists to extend their research in a way that advances science.
  - A. true
  - B. false
10. Scientists work on the belief that basic rules of the universe can be discovered by careful, systematic study.
  - A. true
  - B. false

Consult the graph below to answer the next set of questions.

11. As one progresses through a period on the Periodic Table, the atomic radius of the atoms of the elements tend to

- A. stay the same                      B. increase                      C. decrease

12. What is the atomic radius for one atom of carbon?

- A. 155 pm                      B. 98 pm                      C. 91 pm                      D. 73 pm

13. What is the atomic radius for one atom of potassium?

- A. 155 pm                      B. 92                      C. 190 pm                      D. 235

14. What element has an atomic radius of 190 pm?

- A. lithium                      B. sulfur                      C. silicon                      D. sodium

15. As the atomic number increases in one period of elements on the Periodic Table, the size of the atom tends to

- A. stay the same                      B. increase                      C. decrease

16. As the atomic number increases in one Group of elements on the Periodic Table, the size of the atom tends to

- A. stay the same                      B. increase                      C. decrease

17. Using the provided graph and the Periodic Table, what do you predict is the atomic radius for an atom of Magnesium?

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  - A. the total mass of the molecules involved
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  - A. proton number
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  - C. controlled experimentation
  - D. all of the above
7. Changes that take place in the scientific view of how the world works often occurs in with small modifications of our prior scientific knowledge.
  - A. true
  - B. false
8. Technological problems often create very little demand for new scientific knowledge.
  - A. true
  - B. false
9. New technologies make it possible for scientists to extend their research in a way that advances science.
  - A. true
  - B. false
10. Scientists work on the belief that basic rules of the universe cannot be discovered by careful, systematic study.
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- A. stay the same                      B. increase                      C. decrease

17. Using the provided graph and the Periodic Table, what do you predict is the atomic radius for an atom of Calcium?

## Teacher Answer Key

### PreTest

1. A

2. A

3. C

4. C

5. B

6. D

7. A/T

8. A/T

9. A/T

10. A/T

11. C

12. C

13. D

14. D

15. C

16. B

17. 160 pm (accept 170-130 pm)

### PostTest

1. C

2. D

3. A

4. A

5. B

6. D

7. A/T

8. F/B

9. T/A

10. F/B

11. C

12. C

13. D

14. D

15. C

16. B

17. 197 pm (accept 210-170 pm)