Unit 2 – Atoms, Moles and the Periodic Table Practice Test

Multiple Choice – Choose the BEST Answer!

1. The idea of arranging the elements in the periodic table according to their chemical and physical properties is attributed to

   A. Mendeleev. B. Einstein. C. Bohr. D. Heinsenberg.

2. Elements in a group in the periodic table can be expected to have similar

   A. atomic masses. B. atomic numbers. C. numbers of neutrons. D. properties.

3. In Period 3 there are 8 elements. What sublevel(s) or orbital(s) is (are) being filled?

   A. *s* B. *s* and *d* C. *s* and *p* D. *d* and f

4. Neutral atoms with an s^2p^6 electron configuration in the highest energy level are best classified as

   A. metalloids. B. metals. C. nonmetals. D. noble gases.

5. Elements in which the *d*-sublevel is being filled have the properties of

   A. transition metals. B. nonmetals. C. metalloids. D. gases.

6. The electron configurations of the noble gases from neon to radon in the periodic table end with filled

   A. *s* and *p* orbitals. B. *d* orbitals. C. *s* orbitals. D. *p* orbitals.

7. The elements whose electron configurations end with s^2p^5 in the highest occupied energy level belong to Group

   A. IIIA. B. VIIA. C. VIIIA. D. IVA.

8. If *n* stands for the highest occupied energy level, the outer configuration for all Group 2 elements is

   A. ns^1np^1. B. nd^2. C. ns^2. D. np^2.

9. The alkali metals belong to the ____-block in the periodic table.

   A. *s* B. *p* C. *d* D. *f*

10. The most reactive group of the nonmetals are the

    A. alkaline earths. B. transition elements. C. halogens. D. alkali metals.

11. Atomic size is determined by measuring the

    A. radius of an individual atom. B. distance between nuclei of adjacent atoms.
    C. diameter of an individual atom. D. volume of the electron cloud of adjacent atoms.

12. The energy required to remove an electron from an atom is the atom's

    A. electron affinity. B. electron energy. C. electronegativity. D. ionization energy.

13. A measure of the ability of an atom in a chemical compound to attract electrons is called

A. electron affinity. B. electron configuration. C. electronegativity. D. ionization energy.

14. The element that has the greatest electronegativity is

A. oxygen. B. sodium. C. chlorine. D. fluorine.

15. In a row in the periodic table, as the atomic number increases, the atomic radius generally

A. decreases. B. remains constant. C. increases. D. becomes immeasurable.

16. Within a family of elements, as the atomic number increases, the atomic radius

A. increases.
B. remains approximately constant.
C. decreases regularly.
D. decreases, but not regularly.

17. Which is the best reason that the atomic radius generally increases with atomic number in each group of elements?

A. The effective nuclear charge increases.
B. The number of neutrons increases.
C. The number of energy levels increases.
D. The number of protons increases.

18. In general, ionization energies

A. increase down a group and increase across a period.
B. increase down a group and decrease across a period.
C. decrease down a group and increase across a period.
D. decrease down a group and decrease across a period.
E. increase with atomic mass and increase with atomic radii.

19. In general, atomic radii

A. increase down a group and decrease across a period.
B. increase down a group and increase across a period.
C. decrease down a group and decrease across a period.
D. are proportional to atomic mass.
E. decrease down a group and increase across a period.

20. Place the following atoms in order of increasing size: Al, Cl, Mg, O, and P.

A. Cl < O < P < Al < Mg
B. Cl < P < Al < Mg < O
C. O < Cl < P < Al < Mg
D. O < Mg < Al < P < Cl
E. none of the above

21. Place the following atoms in order of increasing size: Ba, Ca, Mg, Na, and Rb.

A. Na < Mg < Ca < Rb < Ba
B. Mg < Na < Ca < Rb < Ba
C. Na < Rb < Mg < Ca < Ba
D. Ba < Rb < Ca < Mg < Na
E. Ba < Rb < Ca < Na < Mg

22. Place the following atoms in order of increasing ionization energy: C, N, and Si.

A. C < N < Si B. C < Si < N C. Si < C < N D. Si < N < C E. N < C < Si

23. Electronegativity increases

A. moving down a group in the periodic table.
B. moving from left to right across the periodic table.
C. with increasing atomic mass.
D. when electrons are paired.
E. with increasing atomic radii.

24. Which element has the largest atomic radius?

A. Al B. Si C. P D. S E. Cl

25. Which element has the largest atomic radius?

A. B B. Al C. Ga D. In E. Tl

26. Which element has the smallest radius?

A. F B. Cl C. Br D. I E. At

27. Which element has the smallest radius?

A. Mo B. Au C. Bi D. In E. Te

28. Which element has the lowest first ionization energy?

A. F B. Cl C. Br D. I E. At

29. Which element has the lowest first ionization energy?

A. Cs B. Rb C. Ca D. Ba E. Na

30. Which element has the highest first ionization energy?

A. Sn B. Cd C. As D. Tc E. Cl

31. Which element has the highest first ionization energy?

A. Li B. Cs C. Cl D. I E. Ar

32. Which element has the lowest electronegativity?

A. K B. Ca C. Ga D. Ge E. As

33. Which element has the lowest electronegativity?

A. P B. As C. Sb D. Te E. I

34. Which element has the highest electronegativity?

A. C B. Si C. Ge D. Sn E. Pb

35. Which element has the highest electronegativity?

A. Li B. N C. K D. As E. Ba

Answers

1. A	**2. D**	**3. C**	**4. D**	**5. A**	**6. A**	**7. B**	**8. C**	**9. A**	**10. C**
11. A	**12. D**	**13. C**	**14. D**	**15. A**	**16. A**	**17. C**	**18. C**	**19. A**	**20. C**
21. B	**22. E**	**23. B**	**24. A**	**25. E**	**26. A**	**27. E**	**28. E**	**29. A**	**30. E**
31. E	**32. A**	**33. C**	**34. A**	**35. B**					