

* Class Copy - DO NOT write on This Sheet

socratic (KEY)

Periodic Table

- 1. In the modern Periodic Table, the elements are arranged according to **D**
 - A Mass number
 - B Oxidation number
 - C Atomic mass
 - D Atomic number
- 2. Who was credited with creating the first Periodic Table that organized the elements according to atomic mass? **A**
 - A Dmitri Mendeleev
 - B John Dalton
 - C Henry Moseley
 - D Ernest Rutherford
- 3. An atom of an element contains 20 protons, 20 neutrons, and 20 electrons. This element is **D**
 - A A noble gas
 - B A halogen
 - C An alkali metal
 - D An alkaline earth metal
- 4. The elements of group 2 have the same number of occupied principal energy levels **B**
 - A True
 - B False
- 5. On the Periodic Table, an element classified as a semi-metal can be found in **C**
 - A Period 6, Group 15
 - B Period 3, Group 16
 - C Period 4, Group 15
 - D Period 2, Group 14

- 6. Compared to the atomic radius of a sodium atom, the atomic radius of magnesium is smaller. The smaller radius is primarily a result of the magnesium atom having **C**
 - A A smaller nuclear charge
 - B Fewer principal energy levels
 - C A larger nuclear charge
 - D More principal energy levels
- 7. As a sulfur atom gains electrons, its radius decreases **B**
 - A True
 - B False

- 8. Which element has properties of electrical conductivity and luster and exists as a liquid at STP? **B**
 - A I
 - B Hg
 - C Cr
 - D Br

- 9. What type of energy is represented in the equation $\text{Na} + \text{energy} \rightarrow \text{Na}^+ + \text{e}^-$ **D**
 - A Formation energy
 - B Nuclear energy
 - C Neutralization energy
 - D Ionization energy

- 10. Which element has the greatest tendency to attract electrons? **D**
 - A Rb
 - B I
 - C Al
 - D F

- 11. Which element forms a colored ion in solution? **B**
 - A K
 - B Ni
 - C Mg
 - D Li

D

12. Which represents the correct electron configuration of a group 18 element in the ground state?

- A 2-8-7-1
- B 8
- C 2-8
- D 1-1-8

13. Arrange the following elements from lowest to highest ionization energy: Be, Mg, Ca, Sr

- A Be, Mg, Ca, Sr
- B Sr, Ca, Mg, Be
- C Sr, Ca, Be, Mg
- D Be, Mg, Ca, Sr

14. Name an element touching the stair-step line that is NOT a metalloid

- A Al
- B N
- C B
- D As

15. Atomic radius decreases as you move from left to right across the periodic table.

- A True
- B False

16. When a metal atom becomes a cation (positively charged ion)...

- A It gains an electron
- B It becomes a different isotope
- C Its atomic number changes
- D Its ionic radius is smaller than its atomic radius

17. Unknown element X has four energy levels, five valence electrons, and is a metalloid. What is element X?

- A Si
- B N
- C As
- D Ge

18. What is NOT true of the element rubidium?

- A It is an alkali metal
- B It has a relatively low ionization energy
- C It has only one valence electron
- D Its radius is larger than cesium's

19. Lithium and potassium are ___ based on their positions on the periodic table.

- A alkali metals
- B transition metals
- C halogens
- D noble gases

20. Which group tends to have the highest ionization energy; The lowest?

- A halogens; alkaline earth metals
- B alkaline earth metals; halogens
- C alkali metals; noble gases
- D noble gases; alkali metals

21. Elements in the same family have similar chemical properties because they have the same valence electron configuration

- A True
- B False

22. Where are the elements characterized as nonmetals on the Periodic Table are located?

- A far left
- B bottom
- C center
- D top right

23. Which element is a halogen?

- A I
- B N
- C Fe
- D Ne

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24. Which element will form a +2 ion the easiest?

- A O
 B Ca
 C Na
 D Al

B

25. An atom with the electron configuration 2-7 would most likely

- A decrease in size as it forms a positive ion
 B increase in size as it forms a negative ion
 C increase in size as it forms a positive ion
 D decrease in size as it forms a negative ion

B

26. The element whose properties are most similar to those of Sb is

- A N
 B S
 C P
 D As

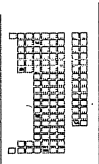
D

27. In the diagram pictured above, which letter represents a halogen?

- A C
 B A
 C E
 D D

C

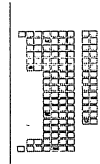
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28. In the diagram above, which letter represents a transition metal?

- A A
 B E
 C B
 D D

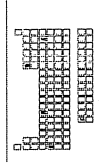
A



29. In the diagram above, which letter represents an element in the lanthanide series?

- A A
 B B
 C C
 D D
 E E

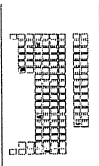
B



30. In the diagram above, which letter represents a metalloid?

- A B
 B E
 C A
 D D

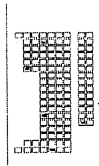
D



31. In the diagram above, which letter represents an alkali metal?

- A D
 B B
 C E
 D A

B



32. Chlorine will bond with which of the following elements to form a highly colorful compound

- A Oxygen
 B Sodium
 C Strontium
 D Manganese

D

33. Which halogen is INCORRECTLY paired with its phase at STP?

- A Br is a liquid
 B F is a gas
 C I is a liquid
 D Cl is a gas

C

34. At which location in the Periodic Table would the most reactive metallic element be found?

- A in Group 1 at the top
 B in Group 1 at the bottom
 C in Group 17 at the top
 D in Group 17 at the bottom

B

35. Elements Z and X are compared. Element Z is larger than Element X. Based on this you could say that:

- A Element Z is closer to the top of the periodic table than Element X.
 B Element X is closer to the top of the periodic table than Element Z.
 C Element X is more metallic than Element Z.
 D Element Z is more electronegative than Element X.

B

36. WHO AM I?

- Gain electrons when forming an ion
- Smaller atomic radius than carbon
- Least metallic in its group
- Diatomic gas at room temperature

- A phosphorus
 B neon
 C fluorine
 D bromine

37. WHO AM I?

- Radius decreases when this element forms an ion
- Unknown element has electrons in 4 energy levels
- Not a colorful compound or ion
- Has a higher ionization energy than calcium
- Is a metal

- A Gallium
 B Arsenic
 C Potassium
 D Cobalt

38. WHO AM I?

- Contains 5 valence electrons
- Has properties of both metals and nonmetals
- Has a higher electronegativity value than both zinc and tellurium

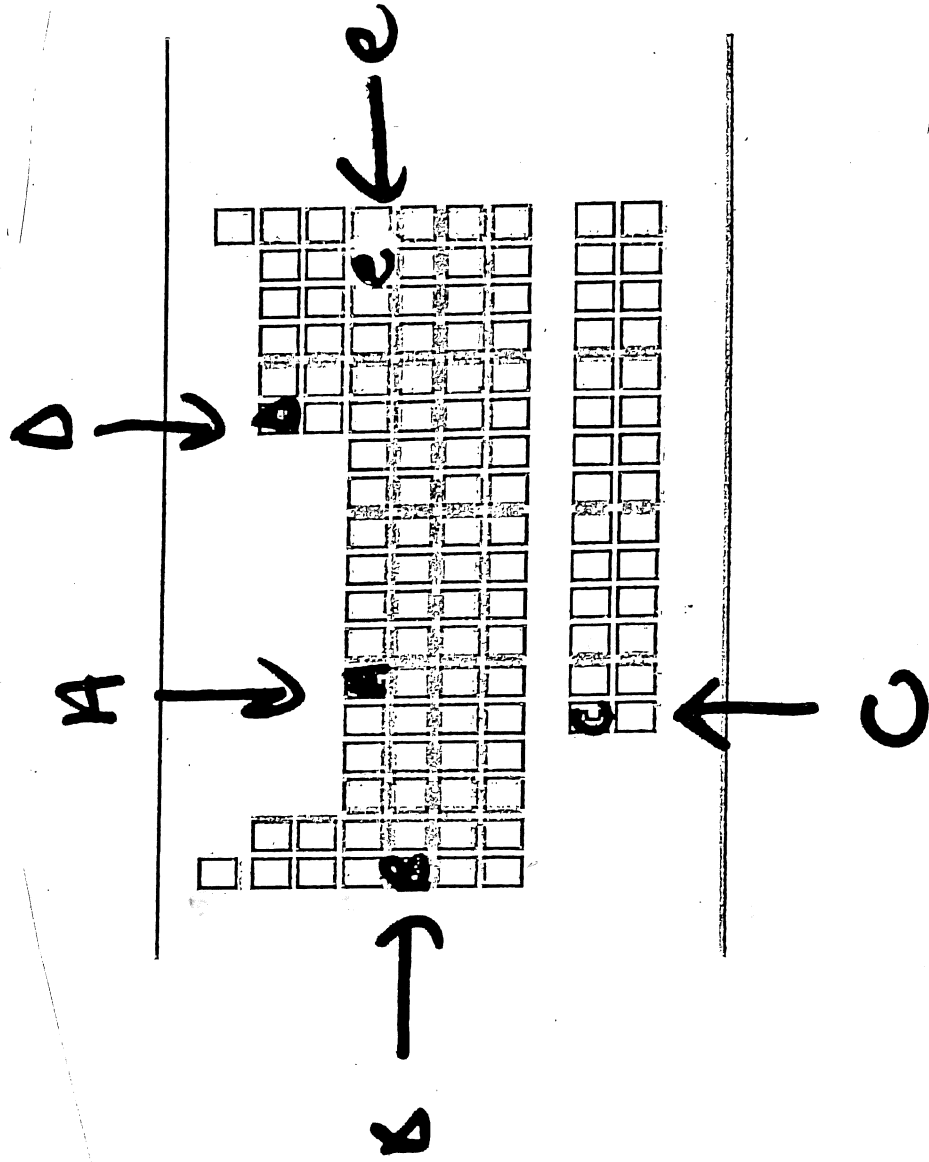
- A Antimony
 B Arsenic
 C Bismuth
 D Nitrogen

39. Which of the following elements is a monoatomic gas at STP?

- A Hydrogen
 B Oxygen
 C Carbon
 D Argon

40. Which is NOT true of the element bromine at STP?

- A It is highly reactive
 B It is a diatomic molecule
 C It does not conduct heat or electricity
 D It is brittle



(4)