

## IPS Atoms and Periodic Table Pre Test

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

- Seven electrons in the outermost energy level is characteristic of a ~~metal~~.  
 \_\_\_\_\_  
 A. True  
 B. False  
 nonmetals
- The number of protons in an atom is called the ~~atomic mass~~. \_\_\_\_\_  
 A. True  
 B. False  
 atomic number
- A group of elements that has two electrons in its outer energy level is the \_\_\_\_\_.  
 A. alkaline earth metals  
 B. halogens →  $7e^-$   
 C. alkali metals →  $1e^-$   
~~D. actinides~~
- The identity of an element is determined by the number of *protons*.  
 \_\_\_\_\_  
 A. True  
 B. False
- The chart showing the classifications of elements according to their properties and increasing atomic numbers is called the *periodic table*. \_\_\_\_\_  
 A. True  
 B. False
- The process by which a solid changes directly to a gas without first becoming a liquid is called \_\_\_\_\_.  
 A. condensation  
 B. ionization  
 C. sublimation  
 D. evaporation  
 gas → liquid  
 gas → plasma  
 liquid → gas
- Each energy level of an atom has a maximum number of \_\_\_\_\_ it can hold.  
 A. neutrons  
 B. quarks  
 C. protons  
 D. electrons

8. The ability of metals to reflect light is referred to as \_\_\_\_.
- A. luster  
 B. ductility → wire  
 C. conductivity  
 D. malleability → sheet

9. Dot diagrams are used to represent \_\_\_\_.
- electricity & heat move*
- A. the structure of the nucleus  
 B. atomic number  
 D. outer electrons  
 C. isotopes



10. A chemical symbol represents the \_\_\_\_ of an element.
- A. name  
 B. structure  
 C. reaction  
 D. type

11. Elements that lie along the stair-step line of the periodic table are \_\_\_\_.
- C. metalloids  
 A. liquids  
 B. metals  
 D. radioactive

12. Atoms of the same element with different numbers of neutrons are called \_\_\_\_.
- A. metalloids  
 B. radioactive  
 D. isotopes  
 C. transition elements

13. A particle that moves around the nucleus is a(n) \_\_\_\_.
- in the nucleus*
- A. proton  
 B. ion  
 D. electron  
 C. neutron

14. A certain atom has 26 protons, 26 electrons, and 30 neutrons. Its mass number is \_\_\_\_.
- P + n = mass*  
*26 + 30 = 56*
- A. 26  
 B. 30  
 D. 56  
 C. 52

15. The symbol for chlorine is Cl. \_\_\_\_
- ↑ Cl*  
*carbon*
- B. false  
 A. True

16. At room temperature, most metals are \_\_\_\_.
- B. solids  
 A. liquids  
 C. radioactive  
 D. gases

17. Two isotopes of carbon are carbon-12 and carbon-14. These isotopes differ from one another by two *electrons*. neutrons  $C12$   $C14$   
 $p+n=mass$   $p+n=mass$   
 $6+n=12$   $6+n=14$   
 $n=6$   $n=8$
- A. True  
 B. False
18. Metals can be used as wire because they are \_\_\_\_\_.  
 A. ductile B. malleable  
 C. shiny D. alloys
19. Nonmetals are poor conductors of heat and electricity. \_\_\_\_\_  
 A. True  
 B. False
20. The symbol for fluorine is Fe. \_\_\_\_\_  
 A. True  
 B. False
21. A very stable electron arrangement in the outer energy level is characteristic of noble gases.  
 \_\_\_\_\_  
 A. True  
 B. False
22. One proton and one electron are added to each element as you go across the periodic table.  
 \_\_\_\_\_  
 A. True  
 B. False
23. Metals are good conductors of heat and electricity. \_\_\_\_\_  
 A. True  
 B. False
24. If a neutral atom contains 21 protons and has an atomic mass of 45, how many neutrons does the atom contain?  
 A. 3  
 B. 24  
 C. 21  
 D. 45  
 $p+n=mass$   
 $21+n=45$   
 $n=24$

25. If a neutral atom contains 12 neutrons and has an atomic mass of 23, how many electrons does the atom contain?

- A. 12  
B. 23  
C. 24  
D. 11

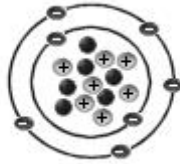
$$p + n = \text{mass}$$

$$p + 12 = 23$$

$$p = 11$$

26. What is the atomic mass of the atom below?

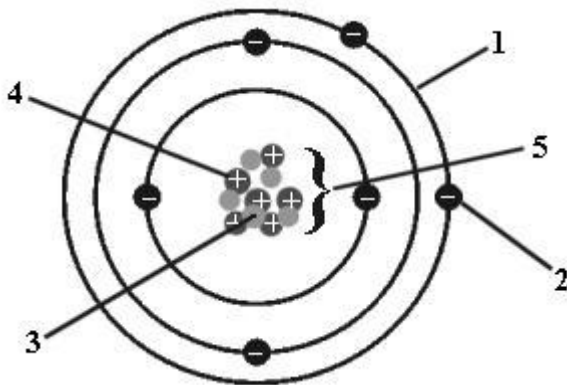
- neutron
- ⊕ proton
- ⊖ electron



$$p + n = \text{mass}$$

- A. 14 amu  
B. 6 amu  
C. 13 amu  
D. 7 amu

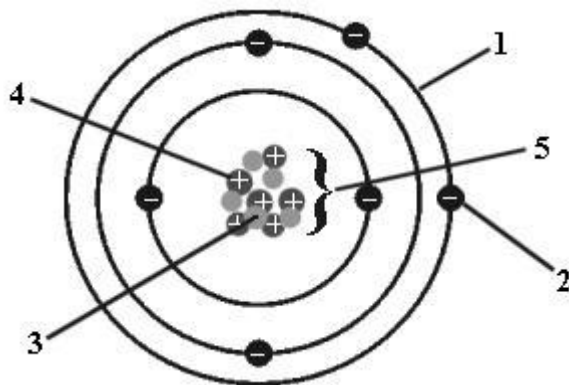
27. Look at the diagram and then answer the question.



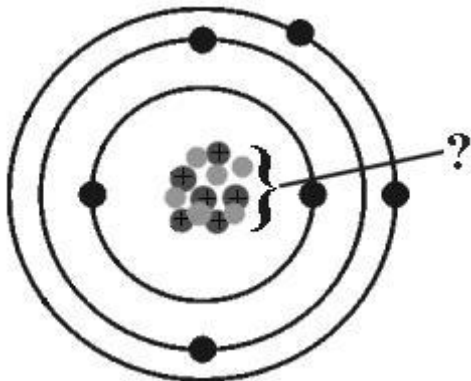
Which part of this atom is labeled with a 3?

- A. a neutron  
B. a nucleus  
C. an electron  
D. an element

28. Which part of the atom is labeled with a 2 in the diagram below?

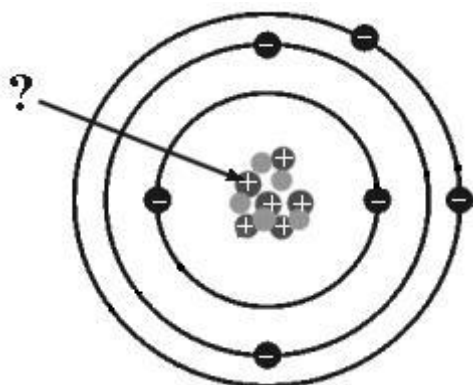


- A. a neutron  
B. an electron  
C. the nucleus  
D. the orbital
29. Which part of this atom is indicated below?



- A. the orbital  
B. the element  
C. the nucleus  
D. the electrons

30. Which part of the atom is indicated below?



- A. an electron  
 B. an orbital  
 C. a neutron  
 D. a proton
31. Which statement is true about **elements**?
- A. Each element contains only one kind of atom.  
 B. There are only five known elements.  
 C. All elements are metallic.  
 D. Elements are made from mixtures of molecules.

32. Use the periodic table below to answer the question.

*1e*

|                   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  |                  |
|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|
| 1<br>H<br>1.01    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  | 2<br>He<br>4.00  |
| 3<br>Li<br>6.94   | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0    | 9<br>F<br>19.0   | 10<br>Ne<br>20.2 |
| 11<br>Na<br>22.99 | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0   | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0 |
| 19<br>K<br>39.1   | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0  | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8 |
| 37<br>Rb<br>85.5  | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128   | 53<br>I<br>127   | 54<br>Xe<br>131  |
| 55<br>Cs<br>133   | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>(209) | 85<br>At<br>210  | 86<br>Rn<br>222  |
| 87<br>Fr<br>223   | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  |                  |

*valence e<sup>-</sup>*

- Which pair of elements has the most similar electron configuration in their outer shells?

- A. Na and Rb  
 B. B and C  
 C. H and He  
 D. N and Cl

33. Use the periodic table below to answer the question.

|                     |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  |                       |
|---------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|-----------------------|
| 1<br>1<br>H<br>1.01 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  | 18<br>2<br>He<br>4.00 |
| 3<br>Li<br>6.94     | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0    | 9<br>F<br>19.0   | 10<br>Ne<br>20.2      |
| 11<br>Na<br>23.0    | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0   | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0      |
| 19<br>K<br>39.1     | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0  | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8      |
| 37<br>Rb<br>85.5    | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128   | 53<br>I<br>127   | 54<br>Xe<br>131       |
| 55<br>Cs<br>133     | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>(209) | 85<br>At<br>210  | 86<br>Rn<br>222       |
| 87<br>Fr<br>223     | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  |                       |

Which pair of elements are most likely to combine to form a compound, due to their number of valence electrons?

- A. Al and Si  
 B. N and As  
 C. Be and Ar  
 D. Mg and O

34. Use the periodic table below to answer the question.

|                     |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  |                       |
|---------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|-----------------------|
| 1<br>1<br>H<br>1.01 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  | 18<br>2<br>He<br>4.00 |
| 3<br>Li<br>6.94     | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0    | 9<br>F<br>19.0   | 10<br>Ne<br>20.2      |
| 11<br>Na<br>23.0    | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0   | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0      |
| 19<br>K<br>39.1     | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0  | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8      |
| 37<br>Rb<br>85.5    | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128   | 53<br>I<br>127   | 54<br>Xe<br>131       |
| 55<br>Cs<br>133     | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>(209) | 85<br>At<br>210  | 86<br>Rn<br>222       |
| 87<br>Fr<br>223     | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                   |                  |                       |

What is the atomic mass of calcium, Ca?

- A. 10  
 B. 40  
 C. 20  
 D. 2

35. Use the periodic table below to answer the question.

|                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 1<br><b>H</b><br>1.01   |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         | 18<br><b>He</b><br>4.00 |
| 3<br><b>Li</b><br>6.94  | 4<br><b>Be</b><br>9.01  |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         | 5<br><b>B</b><br>10.8   | 6<br><b>C</b><br>12.0   | 7<br><b>N</b><br>14.0   | 8<br><b>O</b><br>16.0   | 9<br><b>F</b><br>19.0   | 10<br><b>Ne</b><br>20.2 |
| 11<br><b>Na</b><br>23.0 | 12<br><b>Mg</b><br>24.3 |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         | 13<br><b>Al</b><br>27.0 | 14<br><b>Si</b><br>28.1 | 15<br><b>P</b><br>31.0  | 16<br><b>S</b><br>32.0  | 17<br><b>Cl</b><br>35.5 | 18<br><b>Ar</b><br>40.0 |
| 19<br><b>K</b><br>39.1  | 20<br><b>Ca</b><br>40.1 | 21<br><b>Sc</b><br>45.0 | 22<br><b>Ti</b><br>47.9 | 23<br><b>V</b><br>51.0  | 24<br><b>Cr</b><br>52.0 | 25<br><b>Mn</b><br>55.0 | 26<br><b>Fe</b><br>55.9 | 27<br><b>Co</b><br>59.0 | 28<br><b>Ni</b><br>58.7 | 29<br><b>Cu</b><br>63.6 | 30<br><b>Zn</b><br>65.4 | 31<br><b>Ga</b><br>69.7 | 32<br><b>Ge</b><br>72.6 | 33<br><b>As</b><br>74.9 | 34<br><b>Se</b><br>79.0 | 35<br><b>Br</b><br>80.0 | 36<br><b>Kr</b><br>83.8 |
| 37<br><b>Rb</b><br>85.5 | 38<br><b>Sr</b><br>87.6 | 39<br><b>Y</b><br>88.9  | 40<br><b>Zr</b><br>91.2 | 41<br><b>Nb</b><br>92.9 | 42<br><b>Mo</b><br>95.9 | 43<br><b>Tc</b><br>(98) | 44<br><b>Ru</b><br>101  | 45<br><b>Rh</b><br>103  | 46<br><b>Pd</b><br>106  | 47<br><b>Ag</b><br>108  | 48<br><b>Cd</b><br>112  | 49<br><b>In</b><br>115  | 50<br><b>Sn</b><br>119  | 51<br><b>Sb</b><br>122  | 52<br><b>Te</b><br>128  | 53<br><b>I</b><br>127   | 54<br><b>Xe</b><br>131  |
| 55<br><b>Cs</b><br>133  | 56<br><b>Ba</b><br>137  | 57<br><b>La</b><br>139  | 72<br><b>Hf</b><br>179  | 73<br><b>Ta</b><br>181  | 74<br><b>W</b><br>184   | 75<br><b>Re</b><br>186  | 76<br><b>Os</b><br>190  | 77<br><b>Ir</b><br>192  | 78<br><b>Pt</b><br>195  | 79<br><b>Au</b><br>197  | 80<br><b>Hg</b><br>201  | 81<br><b>Tl</b><br>204  | 82<br><b>Pb</b><br>207  | 83<br><b>Bi</b><br>209  | 84<br><b>Po</b><br>209  | 85<br><b>At</b><br>210  | 86<br><b>Rn</b><br>222  |
| 87<br><b>Fr</b><br>223  | 88<br><b>Ra</b><br>226  | 89<br><b>Ac</b><br>227  |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |                         |

Labels below the table:  
 green: elements 1, 2, 3, 4, 11, 12, 19, 20, 37, 38, 55, 56, 87, 88  
 orange: elements 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86  
 pink: elements 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86  
 blue: elements 17, 35, 53, 85  
 yellow: elements 16, 34, 52, 84

What is the name of the group or family of elements that is shaded in blue?

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



36. Use the periodic table below to answer the question.

|                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 1<br>H<br>1.01   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 2<br>He<br>4.00  |
| 3<br>Li<br>6.94  | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0   | 9<br>F<br>19.0   | 10<br>Ne<br>20.2 |
| 11<br>Na<br>23.0 | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0  | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0 |
| 19<br>K<br>39.1  | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0 | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8 |
| 37<br>Rb<br>85.5 | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128  | 53<br>I<br>127   | 54<br>Xe<br>131  |
| 55<br>Cs<br>133  | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>209  | 85<br>At<br>210  | 86<br>Rn<br>222  |
| 87<br>Fr<br>223  | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | blue             |                  | yellow           |                  |                  |

Labels below the table: green (under group 1), orange (under group 2), pink (under groups 3-10), yellow (under groups 11-18).

What is the name of the group or family of elements that is shaded in green?

- A. halogens
  - B. alkali metals
  - C. noble gases
  - D. transition elements
37. To which group of elements does Bromine, Br, belong?

|                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 1<br>H<br>1.01   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 2<br>He<br>4.00  |
| 3<br>Li<br>6.94  | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0   | 9<br>F<br>19.0   | 10<br>Ne<br>20.2 |
| 11<br>Na<br>23.0 | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0  | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0 |
| 19<br>K<br>39.1  | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0 | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8 |
| 37<br>Rb<br>85.5 | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128  | 53<br>I<br>127   | 54<br>Xe<br>131  |
| 55<br>Cs<br>133  | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>209  | 85<br>At<br>210  | 86<br>Rn<br>222  |
| 87<br>Fr<br>223  | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |

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

38. What is the name of the group on the periodic table below that is shaded in yellow?

|                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|--|
| 1<br>H<br>1.01   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 18<br>He<br>4.00 |  |  |
| 3<br>Li<br>6.94  | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0   | 9<br>F<br>19.0   | 10<br>Ne<br>20.2 |  |  |
| 11<br>Na<br>23.0 | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0  | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0 |  |  |
| 19<br>K<br>39.1  | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0 | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8 |  |  |
| 37<br>Rb<br>85.5 | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128  | 53<br>I<br>127   | 54<br>Xe<br>131  |  |  |
| 55<br>Cs<br>133  | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>209  | 85<br>At<br>210  | 86<br>Rn<br>222  |  |  |
| 87<br>Fr<br>223  | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | blue             |                  |                  |                  |                  |  |  |
| green            |                  | orange           |                  | pink             |                  |                  |                  |                  |                  |                  |                  |                  |                  | yellow           |                  |                  |                  |  |  |

- A. noble gases  
 B. metals  
 C. non-metals  
 D. transition elements
39. Use the periodic table below to answer the question.

|                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
| 1<br>H<br>1.01   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 18<br>He<br>4.00 |  |
| 3<br>Li<br>6.94  | 4<br>Be<br>9.01  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 5<br>B<br>10.8   | 6<br>C<br>12.0   | 7<br>N<br>14.0   | 8<br>O<br>16.0   | 9<br>F<br>19.0   | 10<br>Ne<br>20.2 |  |
| 11<br>Na<br>23.0 | 12<br>Mg<br>24.3 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  | 13<br>Al<br>27.0 | 14<br>Si<br>28.1 | 15<br>P<br>31.0  | 16<br>S<br>32.0  | 17<br>Cl<br>35.5 | 18<br>Ar<br>40.0 |  |
| 19<br>K<br>39.1  | 20<br>Ca<br>40.1 | 21<br>Sc<br>45.0 | 22<br>Ti<br>47.9 | 23<br>V<br>51.0  | 24<br>Cr<br>52.0 | 25<br>Mn<br>55.0 | 26<br>Fe<br>55.9 | 27<br>Co<br>59.0 | 28<br>Ni<br>58.7 | 29<br>Cu<br>63.6 | 30<br>Zn<br>65.4 | 31<br>Ga<br>69.7 | 32<br>Ge<br>72.6 | 33<br>As<br>74.9 | 34<br>Se<br>79.0 | 35<br>Br<br>80.0 | 36<br>Kr<br>83.8 |  |
| 37<br>Rb<br>85.5 | 38<br>Sr<br>87.6 | 39<br>Y<br>88.9  | 40<br>Zr<br>91.2 | 41<br>Nb<br>92.9 | 42<br>Mo<br>95.9 | 43<br>Tc<br>(98) | 44<br>Ru<br>101  | 45<br>Rh<br>103  | 46<br>Pd<br>106  | 47<br>Ag<br>108  | 48<br>Cd<br>112  | 49<br>In<br>115  | 50<br>Sn<br>119  | 51<br>Sb<br>122  | 52<br>Te<br>128  | 53<br>I<br>127   | 54<br>Xe<br>131  |  |
| 55<br>Cs<br>133  | 56<br>Ba<br>137  | 57<br>La<br>139  | 72<br>Hf<br>179  | 73<br>Ta<br>181  | 74<br>W<br>184   | 75<br>Re<br>186  | 76<br>Os<br>190  | 77<br>Ir<br>192  | 78<br>Pt<br>195  | 79<br>Au<br>197  | 80<br>Hg<br>201  | 81<br>Tl<br>204  | 82<br>Pb<br>207  | 83<br>Bi<br>209  | 84<br>Po<br>209  | 85<br>At<br>210  | 86<br>Rn<br>222  |  |
| 87<br>Fr<br>223  | 88<br>Ra<br>226  | 89<br>Ac<br>227  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |

How many valence electrons does the element Te have?

- A. 6  
 B. 3  
 C. 16  
 D. 4

