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Chemistry\_Questions\_0051

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1.

Ammonium chloride (NH<sub>4</sub>Cl) is an example of

A. a heterogeneous mixture
B. a homogeneous mixture
C. a compound
D. an element

2.

Chromium has four naturally occurring isotopes: with an abundance of 4.35% and an isotopic mass of 49.946046 amu, an abundance of 83.79% and an isotopic mass of 51.940509 amu, an abundance of 9.50% with an isotopic mass of 52.940651, and an abundance of 2.36% with an isotopic mass of 53.938882. What is the atomic mass of Chromium?

Isotope	Natural abundance (%)	Isotope mass (amu)
<sup>50</sup> Cr	4.35	49.946046
<sup>52</sup> Cr	83.79	51.940509
<sup>53</sup> Cr	9.50	52.940651
<sup>54</sup> Cr	2.36	53.938882

I know that you can look up the atomic mass on the periodic table. That's not the point. The point is to **show your work** to prove the atomic mass on the periodic table. I've granted extra time to account for technological issues.

Student Response:

3.

Classify the following substances as a homogeneous mixture, heterogeneous mixture, element, compound

milk	homogeneous mixture
ocean water	homogeneous mixture
sodium	element
steel	homogeneous mixture
iodized table salt	heterogeneous mixture

4.

Complete the following sentence so that it makes a scientifically correct statement.

A. The composition of an atom of indium, In, contains 1.----- protons, 2.----- electrons, and 3.----- neutrons.

1.
2.
3.

5.

Match the location on the periodic table to the classification of elements that are found there.

Right side
Left side

6.

If two protons and two neutrons of a fluorine atom are removed, a nucleus of what element remains?

A. sodium
B. magnesium
C. nitrogen
D. neon

7.

Isotopes are atoms that have the same 1.----- but different 2.-----

1.
2.

8.

Match the following elements to their orbital block location on the periodic table...

Se, I, and C
Ti, Mo, and Hg
Rb, Ca, and Be
Eu, Fm, and Ce

9.

Of the following, which atom has the largest atomic size?

- a. Na
- b. Cl

- c. K  
d. Br

A. K
B. Cl
C. Br
D. Na

**10.**

1.----- and 2.----- are contained in the nucleus of an atom, while the 3.----- are contained orbital pockets.

1.	33.33%
2.	33.33%
3.	33.34%

**11.**

Write the electronic configurations for the following atoms and ions: (example the electron configuration for Li would be written 1s<sup>2</sup>, 2s<sup>1</sup>. Please separate the orbitals with a comma and a space)

- A. <sup>17</sup>Cl 1.-----  
B. <sup>22</sup>Ti 2.-----  
C. <sup>46</sup>Pd 3.-----

1.	0%	Equals <b>1s<sup>2</sup>, 2s<sup>2</sup>, 2p<sup>6</sup>, 3s<sup>2</sup>, 3p<sup>5</sup></b> (33.33%)
2.	0%	Equals <b>1s<sup>2</sup>, 2s<sup>2</sup>, 2p<sup>6</sup>, 3s<sup>2</sup>, 3p<sup>6</sup>, 3d<sup>2</sup></b> (33.33%)
3.	0%	Equals <b>1s<sup>2</sup>, 2s<sup>2</sup>, 2p<sup>6</sup>, 3s<sup>2</sup>, 3p<sup>6</sup>, 4s<sup>2</sup>, 3d<sup>10</sup>, 4p<sup>7</sup></b> (33.34%)