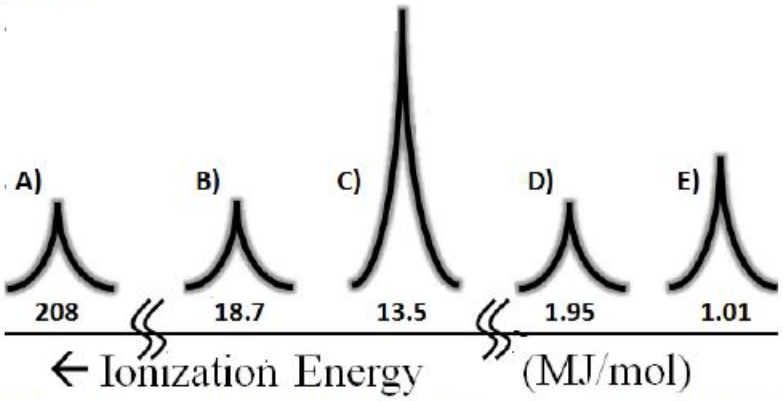
Unit 1 Atomic structure MCQ set 2

The photoelectron spectroscopy (PES) data below for an unknown element can be used to answer questions 1 – 5.



1. Which peak is associated with the electrons that possess the most energy in this element?

___

2. According to Coulomb's Law, the electrons associated with this peak experience the greatest force of attraction for the nucleus.

___

3. Which peak is associated with the 2p subshell?

___

4. Which shell contains the most electrons in the ground state of this element?
   (A) n = 1
   (B) n = 2
   (C) n = 3
   (D) n = 4
   (E) n = 5

___

5. Identify the element that would produce the above spectrum.
   (A) Al
   (B) Si
   (C) P
   (D) S
   (E) Cl

Questions 6 – 8 refer to atoms of the following elements.

(A) Potassium
(B) Fluorine
(C) Neon
(D) Selenium

6. _____ is the most electronegative element.

__

7. _____ has the smallest atomic radius.

__

8. _____ has two unpaired electrons.

__

9. What chemical formula would be expected for one formula unit of Aluminum Sulfide?

(A) AlS
(B) Al_3S_2
(C) Al_2S_3
(D) AlS_2

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10. A sample of KNO_3 (molar mass = 101g/mol) is mixed with a small amount of some impurity. It was found that the overall sample consisted of 20 % potassium by mass. What was the approximate percentage of KNO_3 in the sample?

(A) 25%
(B) 52%
(C) 39%
(D) 63%

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