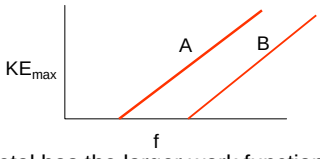
Photons with λ=250 nm (5.0eV) hit a metal surface and emit photoelectrons with a maximum KE of 1.0 eV. What is the work function of the metal?

A) 1.0 eV
B) 2.0 eV
C) 3.0 eV
D) 4.0 eV

Answer D

In a photoelectric effect experiment the following data was obtained with two different metals.



Which metal has the larger work function?

A) A
B) B

Answer B

Which of the following results from the photoelectric effect support the quantum hypothesis?

A) The slope of KE_{max} vs f is h.
B) KE_{max} is independent of intensity
C) There is no delay in the emission of photoelectrons.
D) All of the above

Answer D

The emission spectra for atoms are discrete lines because.

A. The energy levels in the atom are can have arbitrary values.
B. The energy levels in the atom can have only specific values
C. The transitions occur from one energy level to another
D. The photon energy is equal to hf.

Answer B

If the radius of the n=1 state in the Bohr atom is $5x10^{-11}$ m. The radius of the n=2 state is.

A. $2.5x10^{-11}$ m
B. $5x10^{-11}$ m
C. $10x10^{-11}$ m
D. $20x10^{-11}$ m

Answer D

The maximum energy of an emitted photon in the Balmer series (n=2) for the hydrogen atom is

A. 13.6 eV
B. 6.8 eV
C. 3.4 eV
D. 1.5 eV

Answer C

Suppose the rule for the orbital angular momentum quantum number is that ℓ can have values from 0 to n. (instead of n-1) The number of electrons in the n=1 shell would be

A. 2
B. 6
C. 8
D. 10

Answer C

The noble gas Kr has Z=36 and a outer electron configuration of $3d^{10}$, $4s^2$, $4p^6$. The next noble gas is Xe Z=54. The electrons to be added will be in the following subshells.

A. 4d
B. 4d 5s
C. 4d 5s 5p
D. 4d 5s 5p 5f

Answer C