

## Online Homework System

## Assignment Worksheet

3/17/06 - 9:37 AM

**Name:** \_\_\_\_\_**Class:** CHEM 120 Winter 2006**Class #:** \_\_\_\_\_**Section #:** \_\_\_\_\_**Instructor:** Carey Bissonnette**Assignment:** C120-Assgt. 4**Question 1: (1 point)**

What is the maximum kinetic energy of an ejected electron if silver metal is irradiated with 231-nm light? The threshold wavelength for a silver metal surface is 267 nm.

Give your answer accurate to **three significant figures**. Use exponential notation (e.g. 1.23e-19).

**Question 2: (1 point)**

If the electron in a hydrogen atom undergoes a transition from an  $n = 5$  level to an  $n = 2$  level, what is the wavelength of the radiation emitted? Give your answer accurate to **three significant figures**.

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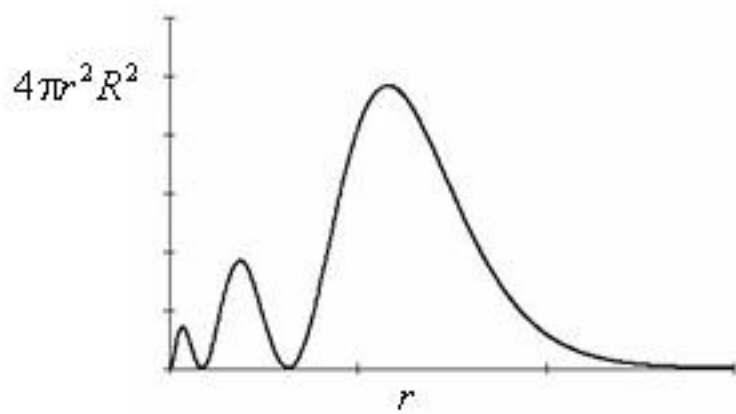
**Question 3: (1 point)**

Fill in the blanks:

The radial probability distribution for an orbital in the  $n = 6$  shell is shown below.

**What type of orbital is it?**

The orbital is a \_\_\_\_\_ orbital. (**Enter 6s, 6p, 6d, or 6f.**)



**Question 4: (1 point)**

Fill in the blanks:

It takes \_\_\_\_\_ electrons to fill the 6f subshell of an atom.

It takes \_\_\_\_\_ electrons to fill the  $n=6$  shell of an atom.

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**Question 5: (1 point)**

Fill in the blanks:

For a **Ge** atom in its ground electronic state:

How many electrons are there in the 4s orbital? \_\_\_\_ (**Enter an integer.**)

How many electrons are there in the 3d orbitals? \_\_\_\_ (**Enter an integer.**)

How many electrons are there in the 4p orbitals? \_\_\_\_ (**Enter an integer.**)

How many unpaired electrons are there? \_\_\_\_\_ (**Enter an integer.**)

To what block of the periodic table does Ge belong? \_\_\_\_ (**Enter s, p, d or f.**)

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**Question 6: (1 point)**

What is the ground-state electron configuration of the  $\text{Cu}^{2+}$  ion?

- (a)  $[\text{Ar}] 4s^2 4d^7$
  - (b)  $[\text{Ar}] 4s^2 3d^7$
  - (c)  $[\text{Ar}] 4s^2 3d^9$
  - (d)  $[\text{Ar}] 4d^9$
  - (e)  $[\text{Ar}] 3d^9$
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**Question 7: (1 point)**

Which of the following is/are paramagnetic in the ground electronic state?

- (a)  $\text{V}^{3+}$
- (b) S
- (c)  $\text{Zn}^{2+}$
- (d)  $\text{Na}^-$
- (e) Fe
- (f) Ti

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**Question 8: (1 point)**

Which of the following atoms is/are paramagnetic in the ground electronic state?

- (a) C
- (b) O
- (c) B
- (d) N
- (e) Be

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**Question 9: (1 point)**

Which atom has the largest covalent radius?

- (a) O
- (b) P
- (c) As
- (d) Se
- (e) S