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Chemistry 221 Final Exam Review *Chapter 6*



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How many emission lines are possible considering only the five quantum levels of hydrogen shown below?

A. 3	
B. 4	 n = 3
C. 7	
D. 8	
E. 10	
	 n = 1

Photons of the highest frequency will be emitted in a transition from the level with n =_____ to the level with the n =_____. A. from n = 1 to n = 2B. from n = 2 to n = 1C. from n = 3 to n = 1D. from n = 4 to n = 1E. from n = 5 to n = 1

The emission line having the longest wavelength corresponds to a transition from the level with $n = $ to the level with $n = $		
A. from <i>n</i> = 1 to <i>n</i> = 2 B. from <i>n</i> = 2 to <i>n</i> = 1	# = 1	
C.from <i>n</i> = 4 to <i>n</i> = 1		
D.from <i>n</i> = 5 to <i>n</i> = 1		
E. from <i>n</i> = 5 to <i>n</i> = 4		

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Excited H atoms emit *visible light* when electrons fall from higher levels to n = 2 (this is called the Balmer series of lines). If green light comes from the transition from n = 4 to n = 2, is the light from the n = 3 to n = 2 transition expected to be red or blue?

A. Red B. Blue C. ultramagnetic Calculate the wavelength in nanometers associated with an energy change of 182.3 kJ/mol.

A. 3.027 x 10⁻¹⁹ B. 6.563 x 10⁻⁷ C.302.7 D.656.3 E. *billions!*

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What is the observed wavelength for an electron (mass = 9.109 x 10⁻²⁸ g) traveling at a speed of 1.20 x 108 m/s? (hint: use kg for mass!)

A. 6.06 x 10⁻³ m B. 1.17 x 10-5 fm C.3.00 x 10⁸ m D.6.06 x 10-3 nm E. none of the above Which of the following is NOT a valid set of quantum numbers?

A. n = 4, ℓ = 1, and m_{ℓ} = -1 B. n = 6, ℓ = 5, and m_{ℓ} = 0 C.n = 2, ℓ = 2, and m_{ℓ} = +1 D.n = 3, ℓ = 2, and m_{ℓ} = -2 E. n = 1, ℓ = 0, and m_{ℓ} = 0

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B.3s C.3p D.4d E. 1f

subshell has 7 orbitals, what is this subshell?

B. three C.four D.five E. seven

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What type of orbital has 2 nodal planes?	Which of the following orbitals has 2 spherical nodes?
A. s	A. 1s
B. p	B. 2p
C. d	C. 3d
D. f	D. 3p
E. g	E. 4p

The electron configuration for neutral chlorine is	What neutral element has the electron configuration 1s ² 2s ² 2p ⁶ 3s ² 3p ⁶ 3d ¹⁰ 4s ² ?
A. $1s^2 2s^22p^6 3s^5$	A. Zn
B. $1s^2 2s^22p^6 3s^23p^5$	B. Ca
C. $1s^2 2s^22p^5$	C. Ge
D. $1s^2 2s^22p^6 3s^23p^6$	D. Ni
E. [Xe]	E. H

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The electron configuration for neutral tin is:

A. [Ne] $4s^2 3d^{10} 4p^2$ B. [Ar] $4s^2 3d^{10} 4p^2$ C. [Kr] $5s^2 4d^{10} 5p^2$ D. [Xe] $5s^2 4d^{10} 5p^2$ E. [Uuo] or [Og] Z = 118! :) What neutral element has the following electron configuration?



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What neutral element has the electron configuration [Xe] 4f ¹⁴ 5d ¹⁰ 6s ² 6p ² ?
A. Hf B. Lu C. Pb D. Sn E. Jq

What is the electronic configuration of P^{3-} ?

A. [Ne] 3s² 3p⁶ B. [Ne] 3s² 3p³ C. [Ne] 3s² D. [Ne] 3p⁶ E. [Ne]

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What ion corresponds to the following electron configuration?

$[Ar] \uparrow \downarrow \uparrow \downarrow \uparrow \uparrow \uparrow $	
A. Fe ³⁺	
B. Rh ³⁺	
C.Co ²⁺	
D.Ni ²⁺	
E. Li ¹⁺	

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Which of the following ions is diamagnetic?

A.Ti²⁺ B.V²⁺ C.Mg²⁺ D.Cr²⁺ E.none are diamagnetic

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Which of the following is the correct electronic configuration for the nickel(II) ion?

A.[Ar] 3d⁸ B.[Kr] 4s² 3d⁶ C.[Ar] 4s² 3d⁶ D.[Kr] 3d⁸ E.[He] Which of the following is the correct electronic configuration for the tin(II) ion?

A. [Kr] 5s² 5p² 4d¹⁰ B. [Kr] 5s² 4d¹⁰ C. [Kr] 5s² 5p² 4d⁸ D. [Kr] 5p² 4d¹⁰ E. [He] 2s² 2p²

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Compare the elements Na, B, Al, and C with regard to the following properties: Which has the largest atomic radius?

A.Na			
B.B			
C.Al			
D.C			
E. Jq			

Which of the following is expected to have the largest radius?

A.P^{3–} B.Cl– C.S^{2–} D.Ar E.need a table to determine

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Compare the elements Na, B, Al, and C with regard to the following properties: Which has the largest (most negative) electron affinity?

A. Na B. B

C.Al D.C E.Jq Which of the following groups of elements is arranged correctly in order of increasing first ionization energy?

A. Mg < C < N < F B. N < Mg < C < F C. Mg < N < C < F D. F < C < Mg < N E. I need Google to answer this question

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End of Review -Good luck with your final exams!

Need more practice?

- Practice Problem Sets (online)
- Concept Guides (Companion and online)

Chapter Guides (online)

- End of Chapter Problems in Textbook (every other question has answer at end)
- MAR Good luck with your studying!

