1: Which of the following reactions is **NOT** a redox reaction?

i. S (s) + O_2 (g) ----> SO_2 (g)

ii. Fe (s) + Cl_2 (g) ---> $FeCl_2$(s)

iii. $NaOH$ (aq) + HCl (aq) ---> $NaCl$ (aq) + H_2O (l)

A: i only B: ii only C: iii only D: i & ii E: all are redox

2: Which of the following reactions correctly balances the redox reaction shown, in an acidic solution:

I_2 (aq) + $S_4O_6^{2-}$ (aq) ---> H_2SO_3 (aq) + I^- (aq)

i. $6\ H_2O + S_4O_6^{2-} + I_2 \text{--->} 4\ H_2SO_3 + 2\ I^- + 4\ H^+$

ii. $6\ H_2O + S_4O_6^{2-} + 3I_2 \text{--->} 4\ H_2SO_3 + 6\ I^- + 4\ H^+$

iii. $2\ H_2O + 4\ OH^- + S_4O_6^{2-} + 3I_2 \text{--->} 4\ H_2SO_3 + 6\ I^-$

A: i only B: ii only C: iii only
D: none of these E: the original

3: Which of the following salts are **not** soluble in water?

i. $Pb(NO_3)_2$ ii. K_2CO_3 iii. $KMnO_4$ iv. CdS

A: i only B: i & ii C: iii only
D: iv only E: ii & iv

4: The US Navy once proposed a communication system for use with submarines. The system used a radio frequency of 76 Hz. What is the wavelength of this signal through a vacuum?

A: 3.95 cm B: 3.95×10^6 m C: 2.28×10^{10} m
D: 0.395 m E: 2.53×10^{-7} m

5: Calculate the frequency of light emitted from a hydrogen atom when an electron falls from the n=5 level to the n=2 level.

A: 435 Hz B: 6.9×10^5 Hz C: 1.3×10^{20} Hz
D: 6.9×10^{14} Hz E: 2.3×10^{-3} Hz

6: Which of the following is an allowable quantum number set?

A: {4,1,2,1/2} B: {3,1,-1,-1/2} C: {1,0,1,1/2}
D: {1,0,0,1} E: {2,2,0,1/2}

7: If you had a mixture of K^+ and Ag^+ ions in solution. Which of the following reagents could you use to separate the two ions?

A: HBr (aq) B: CH_3COOH (aq) C: $HClO_3$ (aq)
D: $NaNO_3$ (aq) E: $Pb(NO_3)_2$ (aq)

8: How many electrons could have the the following quantum numbers: n=2 and m_ℓ = -1

A: 2 B: 8 C: 6
D: 1 E: 4

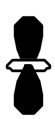
9: What is the correct ground state electron configuration for an element with 15 electrons?

A: $1s^2 2s^2 2p^5 3s^2 3p^4$ B: $1s^2 2s^2 2p^6 3s^2 3d^3$
C: $1s^2 2s^2 2p^6 3s^2 3p^4$ D: $1s^2 2s^2 2p^6 3s^2 3p^3$
E: $1s^2 2s^2 2p^2 3s^2 3p^2 4s^2 3d^3$

10: Which of the following sets contain a strong electrolyte, a weak electrolyte, and a non electrolyte (in any order)
i. HNO_3, NH_3, CH_3COOH
ii. NH_3, C_2H_5OH, KBr
iii. $HClO_4$, CH_3COOH, C_2H_5OH

A: i only B: ii only C: i & ii D: i & iii E: ii & iii

11: Which quantum number set, {n, l}, could describe the drawing below?



A: {2,2} B: {4,2}
C: {2,1} and {2,0} D: {3,-1} and {1,0}
E: {1,2}

Answer Sheet for Test “Fall 99 Review”, 10/25/99

No. in Q-Bank		No. on Test	Correct Answer
1	3	1	C
1	5	2	B
1	7	3	D
1	9	4	B
1	12	5	D
1	14	6	B
1	16	7	A
1	18	8	A
1	20	9	D
1	22	10	E
1	32	11	B