UFSO Chemistry Lab Answer Sheet

General Chemistry - Part 1 (51 points)

Balance the following chemical equations and identify the type of reaction. (5 points each)

1. \((NH_4)_3PO_4 + Pb(NO_3)_4 \rightarrow Pb_3(PO_4)_4 + NH_4NO_3\)

   a. Type:_________________
   b. Sum of Coefficients:______

2. \(C_2H_2 + O_2 \rightarrow CO_2 + H_2O\)

   a. Type:_________________
   b. Sum of Coefficients:______

Balance the following Redox reactions in the indicated solutions. (6 points each)

3. \(H^+ + S_2O_5^{2-} + MnO_4^- \rightarrow Mn^{2+} + SO_4^{2-} + H_2O\) (acidic solution)

   a. Sum of coefficients:______

4. \(H_2O + Fe + CrO_4^{2-} \rightarrow Fe_2O_3 + Cr_2O_3 + OH^-\) (basic solution)

   a. Sum of coefficients:______
Name the following molecules. (1 point each)
5. _______________________
6. _______________________
7. _______________________
8. _______________________
9. _______________________

Provide the molecular formulas for the following molecules. (1 point each)
10. __________
11. __________
12. __________
13. __________
14. __________

Answer the following questions.
15. (4)

16. __ C₃H₆ (g) + ___ NO (g) → ___ C₃H₃N (s) + ___ H₂O (l) + ___ N₂ (g) (5)(Tie-Breaker #4)

    a. ________ (2)

    b. ________ (1)

    c. ________ (2)

17. (5)

Points Earned on This Page: ________
Physical Properties - Part 2 (57 points)
For questions 18, 19, 21, and 23, refer to the diagram below.

18. Label the phases in the diagram above. (3)
19. Label the phase changes in the diagram above. (6)
20. (2)

21. Label the region and point in the diagram above (2)
22. (1)

23. Label the point in the diagram above (1)
24. (5)(Tie-Breaker #1)

Points Earned on This Page: ________
25. Label the curves in the diagram below (2)

26. __________; __________ (2)

27. (4)

28. (6)(Tie-Breaker #3)

29. (1)

   a. (3)

Points Earned on This Page: _______
30. Label the curves below (3)

![Absorption Spectra of Red, Blue, and Violet Food Dyes](image)

31. Label the diagram below. (3)

![Diagram of energy bands](image)

32. (2)

**Multiple Choice (1 point each)**

33. ____ (1)  
34. ____ (1)  
35. ____ (1)  
36. ____ (1)  
37. ____ (1)  
38. ____ (1)  
39. ____ (1)  
40. ____ (1)  
41. ____ (1)  
42. ____ (1)  
43. ____ (1)

Points Earned on This Page: _______
38. ____ (1)

**Acid/Base Equilibrium - Part 3 (43 points)**

44. Label the points on the diagram below. (2)

![Diagram of pH vs. mL titrant added]

45. (1)

46. (4)

47. (1)

48. ____ (1)

49. (2)(Tie-Breaker #2)

Points Earned on This Page: ________
50. __________ (1)
51. __________; __________ (1)
52. (6)

53. ______ (1)
54. __________________________________________ (1)
55. __________________________________________ (1)
56. __________________________________________ (1)
57. __________________________________________ (1)

Determine if each of the following salts would produce a basic, acidic, or neutral solution in water. (1 point each)

58. __________ (1)
59. __________ (1)
60. __________ (1)
61. __________ (1)
62. __________ (1)
63. __________ (1)
64. __________ (1)
65. __________ (1)
66. __________ (1)
67. __________ (1)
68. __________ (1)

Multiple Choice (1 point each)

69. ____ (1)
70. ____ (1)
71. ____ (1)
72. ____ (1)
73. ____ (1)
74. ____ (1)

Points Earned on This Page: ________
75. ___ (1)
76. ___ (1)
Lab Activity - Part 4 (49 points)

Analysis

<table>
<thead>
<tr>
<th></th>
<th>Color Change (5 points each)</th>
<th>pH (&gt;11 or &lt;11) (5 points each)</th>
<th>Identity of Solution (10 points each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

77. ________________________(2)
78. (2)

79. (4)

80. ________________________(1)

Points Earned on This Page: ________