Chemistry 30B **Experiment 9**

Lab Instructor:_____ Name:_____

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Part 1: Paper Chromatography of Amino Acids

Staple the completed, dry chromatogram to this lab report.

Amino Acid	**Distance traveled by amino acid (cm)**	**Distance traveled by solvent (cm)**	**Calculation of R_f value**
Phenylalanine			
Alanine			
Glutamic acid			
Serine			
Lysine			
Aspartic acid			
Unknown #:			

Unknown number	**Identity of unknown**	**Reasoning**

Part 2: pH Test

Substance	pH
Glutamic Acid	
Lysine	
Serine	

Part 3: Biuret Test

Substance	Observations of reaction	Positive or negative reaction?
Egg albumin		
Gelatin		
Casein		
Glycine		
Proline		

Part 4: Xanthoproteic Test

Substance	Initial Color	Color after acid is addded	Color after base is added
Egg albumin			
Tyrosine			

Part 5: Ninhydrin Test

Substance	Observations
Glycine	
Proline	
Egg albumin	

Part 6: Sulfur Test

Substance	Observations	Conclusion
Solid egg albumin		
Solid cysteine		

Part 7: Denaturation Tests

Substance	Initial appearance	Appearance after denaturation
Egg albumin and heat		
Egg albumin and 95% ethanol		
Egg albumin and $FeCl_3$		
Egg albumin and Hg_2Cl_2		

Questions

1. According to the results of the paper chromatography, which amino acids were most attracted to the solvent? Which amino acids were most attracted to the paper? Explain.

2. According to your answer to question #1, which do you think is more polar, the chromatography solvent or the paper? Explain.

3. If you had completely hydrolyzed the egg albumin before doing the Biuret test on that sample, what results would you expect for the Biuret test? Explain why. Include what color you would expect to see, whether it is a positive or negative test, and what that means.

4. Suggest a reason why alcohol or other disinfectants are often applied to a person's skin before an injection is given (based on something you learned in this lab).

5. Draw the structure of phenylalanine in its regular form and its zwitterion form.

6. What substances react in the Biuret test?

7. What substances react in the Xanthoproteic test?

8. Suggest a reason why milk is used as an antidote for lead poisoning. Hint: milk contains a lot of protein.

9. Predict the results of each of the following reactions. Include the observed colors and whether it corresponds to a positive or a negative test.

a. The Biuret test on proline

b. The Biuret test on egg albumin

c. The ninhydrin test on lysine

d. The xanthoproteic test on egg albumin

e. The sulfur test on cysteine