FLINN SCIENTIFIC

Name_____

Laboratory Report

Part A. Classification Tests

Classification Test	Test Tube and Sample						
	1	2	3	4	5	6	7
	Water	Albumin	Casein	Gelatin	Arginine	Cysteine	Tyrosine
Biuret Test							
Xanthoproteic Test							
Sakaguchi Test							
Nitroprusside Test							

Part B. Protein Denaturation and Salting-Out

Effect of Strong Acid

Test Tube		1	2	3
Protein		Albumin	Casein	Gelatin
Initial Appearance				
Effect of HCl	2 drops			
	5 drops			
	10 drops			

Effect of Inorganic and Organic Additives (Albumin)

Test Tube	1	2	3
Additive	$CuSO_4$	$AgNO_3$	Isopropyl Alcohol
Results			

Effect of Heat (Albumin)

Observations	Temperature	Description
First signs of precipitate appeared		
Solution appeared milky white		
Final observations		

Salting-Out with Ammonium Sulfate

Observations	
Test Tube 1 (Albumin + Biuret)	
Test Tube 2 (Filtrate + Biuret)	
Test Tube 3 (Redissolved solid + Biuret)	

Post-Lab Questions

1. Which samples gave positive results in the biuret test? Were there any differences in the color and intensity of the positive test results? How general is the biuret test for detecting proteins of different types?

2. Which amino acids are identified by means of the xanthoproteic test? Which protein samples gave positive xanthoproteic test results? Comment on the composition of the protein samples based on the results of this test.

3. Which amino acids are identified by means of the Sakaguchi test? Which protein samples gave positive Sakaguchi test results? Comment on the composition of the protein samples based on the results of this test.

4. Which amino acids are identified by means of the nitroprusside test? Which protein samples gave positive nitroprusside test results? Comment on the composition of the protein samples based on the results of this test.

5. Compare and contrast the effect of strong acid (HCl) on albumin, casein, and gelatin. Which protein was most sensitive to the action of strong acid? Least sensitive?

6. Which metal salts ($CuSO_4$ and $AgNO_3$) caused albumin denaturation? How does this observation relate to the toxicity of silver salts versus copper salts?

7. You have just been to the doctor's office to receive an inoculation. Before administering the injection, the doctor wipes the area with an alcohol swab. Do the results for albumin denaturation support the use of isopropyl alcohol as a disinfectant? Explain.

8. The biuret test is used to identify proteins. Compare the results obtained in the biuret test with albumin and the filtrate after the salting-out procedure in Part B. How effective is the "salting-out" procedure with ammonium sulfate?

9. Is denaturation of albumin by ammonium sulfate reversible or irreversible? Explain on the basis of your observations for the biuret test with albumin and the redissolved precipitate, respectively.