

Biochemistry Lab – Experiment 4 Questions

Part 1: Multiple Choice Questions

1. What is the main purpose of adding CuSO_4 in the Biuret test?
1 A. To denature protein
2 B. To detect peptide bonds
3 C. To oxidize amino acids
4 D. To produce ammonia
2. Which reagent provides the alkaline medium in the Biuret test?
1 A. H_2SO_4
2 B. NaOH
3 C. Ninhydrin
4 D. Lead acetate
3. A violet color in Biuret test indicates:
1 A. Presence of lipids
2 B. Presence of peptide bonds
3 C. Presence of sulfur
4 D. Absence of protein
4. What is observed after heat denaturation of proteins?
1 A. Blue solution
2 B. Gas formation
3 C. Precipitation
4 D. Yellow color
5. What is the main function of Ninhydrin reagent?
1 A. Detect peptide bonds
2 B. Detect free amino groups
3 C. Detect sulfur
4 D. Detect phenol
6. A deep blue-purple color in Ninhydrin test indicates:
1 A. Presence of carbohydrates
2 B. Presence of amino acids
3 C. Presence of lipids
4 D. Absence of protein
7. Yellow color in Ninhydrin test indicates presence of:
1 A. Tyrosine
2 B. Tryptophan
3 C. Proline
4 D. Cysteine
8. Millon's reagent is specific for detecting:
1 A. Sulfur group
2 B. Phenolic group
3 C. Amino group
4 D. Carboxyl group

9. A positive Millon's test gives:

- 1 A. Blue color
- 2 B. Red precipitate
- 3 C. Green solution
- 4 D. Black precipitate

10. Hopkins-Cole test detects:

- 1 A. Cysteine
- 2 B. Tyrosine
- 3 C. Tryptophan
- 4 D. Glycine

11. The purple ring in Hopkins-Cole test appears:

- 1 A. At the bottom
- 2 B. At the interface of two layers
- 3 C. On the surface
- 4 D. Throughout the solution

12. Lead acetate in Lead-sulfur test is used to:

- 1 A. Detect nitrogen
- 2 B. Detect sulfur
- 3 C. Detect oxygen
- 4 D. Detect peptide bonds

13. A black precipitate in Lead-sulfur test indicates:

- 1 A. Absence of protein
- 2 B. Presence of sulfur-containing amino acid
- 3 C. Presence of tyrosine
- 4 D. Presence of glucose

14. Nitroprusside test is specific for:

- 1 A. Tyrosine
- 2 B. Tryptophan
- 3 C. Cysteine
- 4 D. Glycine

15. Red color in Nitroprusside test indicates:

- 1 A. Presence of SH group
- 2 B. Presence of OH group
- 3 C. Presence of ~~SH~~ group NH_2
- 4 D. Presence of COOH group

Part 2: Fill in the Blanks

1. The Biuret test detects the presence of _____ bonds.
2. In Biuret test, _____ ions react with peptide bonds to produce violet color.
3. Heat denaturation causes protein _____ and loss of structure.
4. Ninhydrin reacts with _____ groups of amino acids.
5. A yellow color in Ninhydrin test indicates _____ amino acid.
6. Millon's test is specific for amino acid _____.
7. Hopkins-Cole test detects the presence of _____ ring.
8. A black precipitate in Lead-sulfur test is due to formation of _____.
9. Nitroprusside reacts with _____ group in cysteine.
10. In Hopkins-Cole test, _____ acid is used to stabilize glyoxylic acid.

Answers

MCQs:

- 1 1. B
- 2 2. B
- 3 3. B
- 4 4. C
- 5 5. B
- 6 6. B
- 7 7. C
- 8 8. B
- 9 9. B
- 10 10. C
- 11 11. B
- 12 12. B
- 13 13. B
- 14 14. C
- 15 15. A

Fill in the blanks:

- 1 1. peptide
- 2 2. copper (Cu^{2+})
- 3 3. unfolding
- 4 4. amino (NH_2)
- 5 5. proline ₂
- 6 6. tyrosine
- 7 7. indole
- 8 8. lead sulfide
- 9 9. sulfhydryl ($-\text{SH}$)
- 10 10. sulfuric (H_2SO_4) _{2 4}