D.K.M. COLLEGE FOR WOMEN (AUTONOMOUS), VELLORE-1

CHEMISTRY OF NATURAL PRODUCTS-15CCH6B

UNIT-I SECTION-A 2 Marks

1. Define the term carbohydrates.
2. What are carbohydrates? Give an example.
3. What is monosaccharide? Give an example.
4. What are disaccharides? Give an example.
5. What are oligosaccharides? Give an example.
6. What are polysaccharides? Give an example.
7. What happens when glucose is treated with sodium acetate and acetic acid?
8. Why glucose and fructose form same osazone?
9. What is meant by epimerization?
10. What are reducing sugars? Give an example.
11. What happens when glucose is treated with bromine water?
12. What are epimers?
13. What is mutarotation?
14. Mention any two uses of glucose.

SECTION-B 5 Marks

1. Write the classification of carbohydrates.
2. Give evidences for open chain structure of glucose.
3. What is mutarotation? Give the mechanism of it.
4. Discuss the structural elucidation of glucose.
5. Deduce the structure of fructose.
6. What happens when glucose is treated with (i) conc. HNO_3 (ii) HCN (iii) phenyl hydrazine.
7. Write notes on osazone formation.
8. Draw Haworth's projection formulae of α- and β-D-glucose.
9. Write the uses of glucose.

10. Give the analytical tests of carbohydrates.

11. What is Lobry de Bruyn-Ekenstein rearrangement?

SECTION-C 10 Marks

1. Elucidate the structure of glucose

2. Elucidate the structure of fructose.

3. Explain mutarotation and epimerization.

4. Explain the configuration of glucose.

5. Give evidences for pyranose structure of glucose

UNIT-II SECTION-A 2 Marks

1. What is gun cotton?

2. Mention any two uses of starch.

3. Give any two uses of cellulose.

4. What happens when sucrose is hydrolysed?

5. What is meant by inversion of cane sugar?

6. What is pyroxin?

7. What is barely sugar?

8. What happens when sucrose is treated with conc. HCl?

9. Write the fermentation reaction of sucrose.

SECTION-B 5 Marks

1. Discuss the carbon chain lengthening of aldose.

2. What is Kiliani synthesis? Give an example.

3. Discuss the carbon chain shortening of aldose.

4. How is aldohexose converted to ketohexose?

5. How will you convert (i) glucose to fructose (ii) arabinose to glucose (iii) fructose to glucose.

6. Explain inversion of cane sugar.

7. Write short notes on the structure of cellulose.

8. Explain the properties and structure of starch.

9. Give the properties of cellulose.

10. Write the uses of starch.

11. Give the applications of cellulose derivative.

12. Explain the ring size of maltose.

13. Give the properties of starch

SECTION-C **10 Marks**

1. Elucidate the structure of maltose.
2. Discuss the structure of sucrose.
3. Discuss the structure of starch.
4. Explain the uses of cellulose.
5. Elucidate the structure of cellulose.

UNIT-III **SECTION-A** **2 Marks**

1. What are amino acids?
2. Define zwitter ion.
3. What is isoelectric point?
4. What are essential amino acids?
5. What are α-amino acids? Give an example.
6. What are essential amino acids? Give an example
7. What are non-essential amino acids? Give an example
8. What happens when α-amino acids are heated?
9. What happens when β-amino acids are heated?
10. What happens when γ-amino acids are heated?

SECTION-B **5 Marks**

1. What is the action of heat on α, β and γ-amino acids?
2. Write any two reactions involving amino and acid group of amino acids.
3. Write Gabriel phthalimide synthesis
4. Give the reaction of Strecker synthesis
5. Write the classification of amino acids.
6. Write ninhydrin test.
7. Give Erlenmeyer synthesis of amino acids.
8. Write important properties of amino acids.

9. Give the reactions of amino acids due to amino group.

SECTION-C 10 Marks

1. Discuss various methods of preparation of amino acids.
2. Give the reactions of amino acids due to amino group.
3. (i) What is the action of heat on α, β and γ-amino acids.

   (ii) Write any two reactions involving amino and acid group of amino acids.

UNIT-IV SECTION-A 2 marks

1. What do you meant by peptide linkage?
2. What are simple proteins?
3. What are nucleic acids?
4. What are proteins?
5. What are nucleosides?
6. What are nucleotides?
7. What are simple proteins?
8. What are lipoproteins?
9. What are phosphoproteins?
10. What are conjugated proteins?

SECTION-B 5 Marks

1. Explain primary and secondary structure of proteins.
2. Enumerate the properties of proteins.
3. How will you prepare peptides using Bergmann method?
4. What are two major types of nucleic acids? Name them.
5. Discuss the biological importance of nucleic acids.
6. What is meant by denaturation of proteins?
7. Explain the structure of nucleic acids.
8. Explain alpha- helical and beta- sheet structures of proteins.
9. What are globular proteins?
10. Explain end terminal analysis using Sanger's method.

11. Explain degradation of nucleic acids.
12. Write notes on synthesis of proteins.
13. How proteins are classified based on physiological functions?
14. Write the biological functions of RNA.
15. Write notes oon solid phase synthesis/Merrifield synthesis.

SECTION-C 10 Marks

1. How proteins are classified based on chemical properties?
2. Enumerate the properties of proteins.
3. Explain the N-termainal and C-terminal analysis of proteins.
4. Explain the end group analysis of proteins.
5. Give the structures of proteins.
6. Explain the structure of DNA.
7. Give the structure of RNA

UNIT-V SECTION-A 2 Marks

1. What is isoprene rule?
2. What are alkaloids? Give an example.
3. How will you obtain hygrinic acid from nicotine?
4. Give any two uses of chloramphenical.
5. Mention the therapeutic uses of Penicillin G.
6. What are antibiotics?
7. What are terpenoids/terpenes?
8. Draw the structure of chloramphenicol.

SECTION-B 5 Marks

1. How alkaloids are classified?
2. Elucidate the structure of coniine.
3. How are alkaloids isolated from plants?
4. How will you establish the presence and position of double bond in α-terpeniol?
5. Discuss in detail the structural elucidation of menthol.
6. Explain the structure of piperine.
7. Discuss the structure of nicotine.

8. Give the structural elucidation of geraniol.
9. Give the classification of antibiotics.

SECTION-C 10 Marks

1. Elucidate the structure of menthol.
2. Elucidate the structure of α-terpeniol.
3. Establish the structure of geraniol.
4. Describe the structural elucidation of Penicillin G.
5. Describe the structural elucidation of chloramphenicol.