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CHS 505

Third Semester M.Sc. Degree Examination, December 2018

CHEMISTRY

(CBCS : 2016-17 Syllabus) (New Syllabus)

Bioorganic Chemistry

Time : 3 Hours

Max. Marks : 70

Note : i) Answer Part – A and **any four** questions from Part – B.
ii) Figures to the **right** indicate marks.

PART – A

1. Answer **all** the following sub-questions : **(9×2=18)**

1. a) Write the Fischer projection and Haworth structures of Sucrose.
- b) State and explain Hudson's amide rule.
- c) Write the partial structure of amylose highlighting the nature of glycosidic linkages.
- d) Mention the importance of disulphide bonds in proteins.
- e) What is protein denaturation ? How is it achieved ?
- f) Mention important functions of adrenocorticotrophic hormones.
- g) What diseases are caused by Vitamin A₁ and Vitamin C deficiency ?
- h) Write the chemical structures of Streptomycin and Tetracyclin.
- i) What are antibiotics ? How are they classified ?

PART – B

Answer **any four full** questions : **(4×13=52)**

2. a) Explain the following with suitable examples :
 - i) Mutarotation
 - ii) Epimerisation
- b) Discuss the partial structures of cellulose and chitin.
- c) Write a note on Smith degradation.

(6+4+3)

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3. a) Explain methylation and partial hydrolysis of polysaccharides with suitable examples.
- b) Give an account of ester and acetal derivatives of monosaccharides.
- c) Discuss important industrial applications of cellulose and starch. **(5+5+3)**
4. a) Illustrate the importance of amino and carboxy protecting groups in peptide synthesis.
- b) Explain the Merrifield solid state peptide synthesis.
- c) Write a note on structure of insulin and its function in human body. **(6+4+3)**
5. a) Explain the structural determination of peptides using end group analysis.
- b) Discuss the chemical synthesis of nucleosides and nucleotides.
- c) Write a short note on tertiary structure of proteins. **(5+5+3)**
6. a) Discuss the biological functions of Vitamin A₁ and Vitamin B₅.
- b) Give the chemical synthesis of Vitamin A₁.
- c) Explain the mechanism of action of Streptomycin and Tetracycline. **(5+4+4)**
7. a) Outline the synthesis of Penicillin V and Chloramphenicol.
- b) Give an account of the diseases caused by deficiency of Vitamins.
- c) Outline the chemical synthesis of Vitamin K₁. **(6+4+3)**
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