

**2007-NATIONAL INSTITUTE OF TECHNOLOGY(NIT)**

III SEMESTER B.TECH MODEL EXAMINATION

**BIOCHEMISTRY**

(CHEMICAL ENGINEERING)

TIME-1HOUR

MARKS-40

**Note: Answer all questions. Each question carries 8 marks.**

1. (a) Explain (i) Endoplasmic reticulum & (ii) Golgi complex. Mention their functions in the cell.  
(b) A sample of microbial protein was found to contain 7.5 % nitrogen by Kjeldahl's method. Calculate the percentage of protein present in it.  
(c) Write the Haworth's structures of (i) alpha and beta Glucose (ii) Sucrose and (iii) Chondroitin - 4 - sulphate.  
(d) Explain briefly (i) Cellulose and (ii) Chitin.
2. (a) What are lipids ? How are they classified ? Give examples.  
(b) Explain the structure and functions of Sphingomyelins  
(c) Write the structure of cholesterol. Mention its properties and functions.
3. (a) Discuss the classifications of amino acids giving examples for each class.  
(b) Explain how sequence of amino acids is determined using Sanger's reagent. Write briefly on a - helix structure of protein molecules.
4. (a) Compare the salient features of tertiary and quaternary structures of proteins.  
(b) Write an account of (i) Precipitation of proteins at  $p_i$  & (ii) Biuret reactions of proteins.  
(c) What is denaturation of protein ? Explain the characteristics of denaturation.
5. (a) What is Chargaff's rule of DNA composition ? Explain double helical structure of DNA.  
(b) Name the important bases and carbohydrates present in nucleic acids. Write their structures.  
(c) Give an example of biologically active peptide. Write any three functions of it.