



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

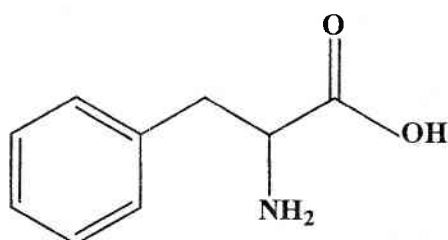
**B.Sc. (General) Degree in Applied Sciences
Second Year Semester II Examination – February /March 2019**

CHE 2104 – INTRODUCTION TO BIOCHEMISTRY

Answer ALL questions.

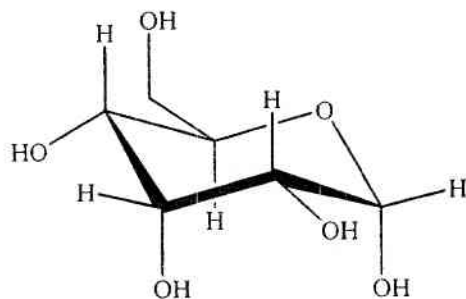
Time: One (01) hour

1. a) Structure of the phenylalanine is given below.



- i) Comment about the polarity of above amino acid. (4 marks)
 - ii) What is the possible interaction that phenylalanine can participate? (4 marks)
 - b) What is the relationship between a cofactor and a prosthetic group? (7 marks)
 - c) Both amylose and cellulose are polymers of D-glucose units. However, they possess dissimilar properties. What is the major difference of amylose and cellulose in terms of bonding? (10 marks)
- 2.
- a) Define the denaturation of proteins. (4 marks)
 - b) List the advantages of tryacylglycerol as a stored fuel over glycogen and starch. (5 marks)
 - c) List four (04) types of interactions that stabilize the tertiary structure of proteins. (8 marks)
 - d) Give characteristic features of the α -helix structure in the secondary proteins. (8 marks)

3. a) Structure of the α -D-glucopyranose is given below.



- i) α -D-glucopyranose and β -D-glucopyranose are anomers. Draw the structure of the β -D-glucopyranose. **(5 marks)**
 - ii) Indicate the anomeric carbon and hemiacetal group in β -D-glucopyranose structure. **(8 marks)**
- b) Sketch the DNA double stranded structure and label the main components. **(8 marks)**
- c) What is the main role of cholesterol in cell membrane? **(4 marks)**
4. Sigmoidal shape indicates the cooperative binding of O_2 molecules to Hemoglobin.
- a) Sketch and label the binding site of O_2 bound Hemoglobin. **(5 marks)**
 - b) What do you mean by "cooperative binding"? **(10 marks)**
 - c) Briefly describe the O_2 transport process from lungs to tissues using R and T forms. **(10 marks)**

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