RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES
B.Sc. in Applied Sciences
Third Year Semester II Examination – January / February 2023
CHE 3204 – FOOD CHEMISTRY

Time: 02 hours

Answer any four (04) questions

01. (a) Describe the three forms of water present in foods and their effect on reactions in foods. (*20 marks*)

(b) Briefly explain why water exhibits unique properties with compared to other small molecules. (*20 marks*)

(c) Explain an experimental method to determine the monolayer moisture content of a food. (*20 marks*)

(d) Describe how the moisture content of food influences their stability/shelf life using the moisture sorption isotherm and related reactions. (*40 marks*)

02. (a) What are the desirable effects of denaturation on functional properties of proteins? (*20 marks*)

(b) Explain the factors affecting the denaturation of protein. (*25 marks*)

(c) Describe the properties and importance of food enzymes. (*25 marks*)

(d) Giving suitable examples, elaborate the functional properties of protein in different food products. (*30 marks*)

03. (a) Briefly explain how the fatty acid composition of lipids affect the quality of dietary lipids. (*20 marks*)

(b) Describe the functional role of fat in different foods using suitable examples. (*20 marks*)

(c) Explain **five (05)** physical and/or chemical properties of lipids that influence on their functionality. (*30 marks*)

(d) "Some of the undesirable physico-chemical changes occur during processing of edible fat due to certain chemical reactions". Comment on the above statement highlighting physico-chemical changes and relevant chemical reactions. *(30 marks)*

04. (a) Illustrate the formation of a disaccharide using relevant chemical structures. *(20 marks)*

(b) Explain the chemical reaction responsible for the formation of caramel in and state the physico-chemical changes that resulted in food due to the above reaction. *(35 marks)*

(c) Explain **five (05)** selected functional properties of carbohydrates and their applications in the food industry. *(45 marks)*

05. (a) "Food colloids give the texture and mouthfeel to different food products". Comment on the statement giving suitable examples. *(25 marks)*

(b) Explain how antioxidants could extend the shelf life of oily foods. Use suitable chemical reactions to explain your answer. *(25 marks)*

(c) Write short notes on **two (02)** of the below-mentioned topics. Note the word limit per topic is 200. *(50 marks)*

(i) Food preservatives

(ii) Stability of vitamins and minerals

(iii) Food colorants

-- END OF QUESTIONS--