



# RAJARATA UNIVERSITY OF SRI LANKA

## FACULTY OF APPLIED SCIENCES

B.Sc. (General/Special) Degree

Third Year Semester II Examination– Oct / Nov 2017

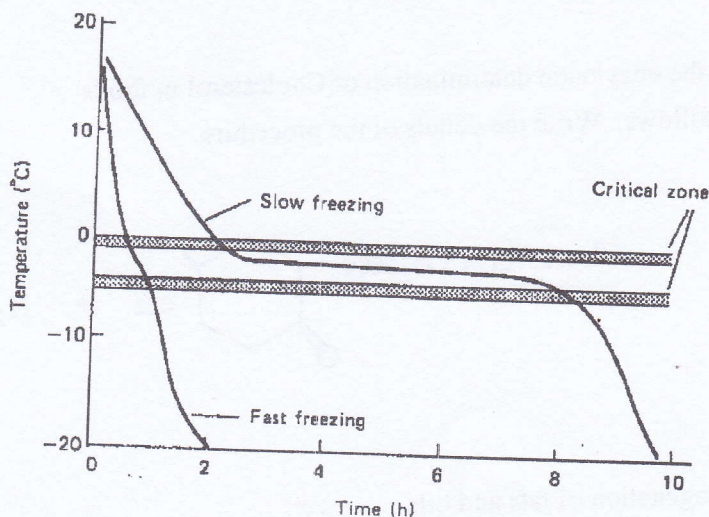
### CHE 3204 – FOOD CHEMISTRY

Answer any four (04) questions

Time: 02 hours

01.

- (a). Define “water activity” and describe how water activity affect the reaction rates of foods using water sorption isotherm. (10 marks)
- (b). Describe how hydrogen bonds behave in liquid water and ice. (05 marks)
- (c). “Foods can adsorb or desorb water from the environment”. Discuss this statement. (05 marks)
- (d). Temperature changes of a food through critical zone during slow freezing and fast freezing is given below. Explain the graph (05 marks)





02.

- (a). Write short note on "transport proteins"

(05 marks)

- (b). Briefly describe how protein provides energy and calculate how many grams of protein required to fulfill the daily requirement of 2000 calories of a person, if only 12% of energy provided by proteins.

(03 marks)

- (c). What is the Recommended Dietary Allowance (RDA) for protein? Calculate the amount (g) of protein required for 75 Kg person of body weight.

(02 marks)

- (d). Write short notes on following topics

i. "Chitin" and its structural monomer.

(05 marks)

ii. Caramelization of foods

(05 marks)

iii. Non-nutritive sweeteners

(05 marks)

03.

- (a). Explain the benefits of omega-3 fatty acids in human health and draw the structures of EPA and DHA

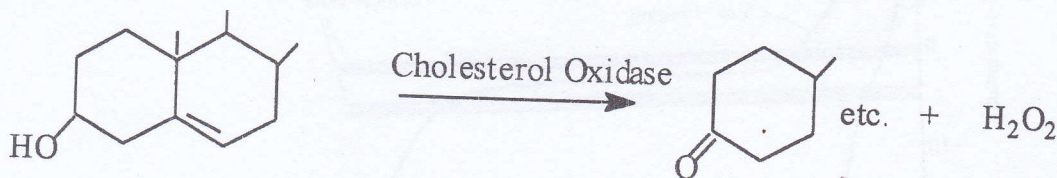
(07 marks)

- (b). Describe the initiation mechanisms of lipid oxidation

(06 marks)

- (c). Equation relevant to the enzymatic determination of Cholesterol in foods can be expressed as follows. Write the details of the procedure.

(07 marks)



- (d). Write a note on Hydrogenation of fats and oils

(05 marks)



04.

- (a). List out functions or purposes of food additives. (03 marks)
- (b). List out four types of food additives (02 marks)
- (c). Write a note on the following topics
  - i. Use of Sorbic acid as food preservative. (07 marks)
  - ii. Singlet oxygen quenchers (06 marks)
  - iii. Use of ascorbic acid and ascorbate salt as antioxidants (07 marks)

05.

- (a). Explain the structure and the functions of the emulsifying agent (06 marks)
- (b). Define "food flavors" (03 marks)
- (c). List out principal types of flavorings used in foods and give details of one of them (04 marks)
- (d). Write a comprehensive note on "Bitter taste" by giving examples. Draw the structure of one example. (07 marks)
- (e). Discuss the differences in taste of Nitrotoluidine isomers (05 marks)

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