SCT 325 BOT 3325 – 3 Food chemistry and analysis
3rd year 1st Semester
2019

Part B

1.

a. State the difference between cis and trans fats.

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(05 marks)

b. A food company manufacturing bicuits, wanted to analyse fat level of a biscuit which is specifically manufactured for childrens under 12 years old before releasing it to the market. The manager of the company asked one of the chemists to submit a report on the fat level of that biscuit within one weeks time. The chemist analyzed the free fatty acid level available in 1g of fat of that biscuit through a titration method using KOH and it was estimated as 12%.

i) Calculate the weight (in miligrams) of KOH required to neutralize the free fatty acids available in 1 g of fat of that biscuit.

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(05 marks)

ii) Estimate the volume of KOH required to neutrilize free fatty acids in 10 g of biscuit sample. (note: Molality of KOH is 0.25N)

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(10 mark

iii) The chemist carried out another titration for two solutions with and without 50 g of th biscuit sample against 0.10 N HCl to find out the saponification value. At the end poir 10 mL and 20 mL of HCl were required to neutralize the solutions with and without th biscuit sample respectively. Calculate the saponification value of the biscuit sample?

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2. a. State the major four (04) types of casein protein available in milk.

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b. Briefly explain the major steps and intermediate conditions of high fructose corn sy production process?

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(06 marks)

c. Give the commercial usage of following enzymes.

i. Lactase- .....

ii. Lipases-.....

iii. Chymosin-.....

iv. Polyphenol oxidase-.....

v. Pectinase-.....

(05 marks)

d. Briefly explain the chemical background of enzymatic browning.

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(10 marks)

e. Briefly explain the temperature affects on the enzymatic reaction rate using kinetics.

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(5 marks)

Essay Question

1. a. Explain the physicochemical background of gelatinization. (15 marks)

   b. Briefly explain the factors influencing gelatinization. (10 marks)