RAJARATA UNIVERSITY OF SRI LANKA

FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences

Third Year Semester II Examination– February / March 2019

CHE 3204 – FOOD CHEMISTRY

Answer any four (04) questions   **Time: 02 hours**

01.

   (a). Compare the boiling points of H_2S and H_2O based on their structural properties.   (25 marks)

   (b). Discuss the three forms of water capillary, structured and adsorbed.   (25 marks)

   (c). What is moisture sorption isotherm? Draw the relevant graph.   (25 marks)

   (d). Discuss "The Clausius-Clapeyron relationship"   (25 marks)

02.

   (a). Briefly describe how the dipeptide bonds are formed.   (25 marks)

   (b). Discuss about essential and nonessential amino acids.   (25 marks)

   (c). Name four factors that cause denaturation of proteins.   (20 marks)

   (d). Explain the role of proteins under given functions.   (30 marks)

          i. Fluid balance   ii. Acid base balance   iii. Antibodies

03.

   (a). Briefly discuss the importance of EPA and DHA in human nutrition and health.   (25 marks)

   (b). Describe dry extraction method of lipids.   (25 marks)

   (c). Briefly describe an instrumental technique that you can use to determine the fatty acid composition of lipids.   (25 marks)

   (d). Explain "Hardening" process conducted during production of margarine.   (25 marks)

04.

(a). What is dextrinisation   (20 marks)

(b). Give the mechanism of dicarbonyl formation of following enediol.   (30 marks)

$$
\begin{array}{c}
H-C-OH \\
\parallel \\
C-OH \\
| \\
HO-C-H \\
| \\
H-C-OH \\
| \\
H-C-OH \\
| \\
CH_2OH
\end{array}
$$

(c). Mention four instances that food additives should not be added.   (20 marks)

(d). Explain "polymerization" reactions of lipids   (30 marks)

05.

(a). What are colloidal systems?   (20 marks)

(b). Mention two functions of colloidal systems in food products.   (20 marks)

(c). Discuss the antioxidant properties of following compound.   (30 marks)

(d). Briefly describe the basic steps in manufacturing process of ice cream.   (30 marks)

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