Uva Wellassa University, Sri Lanka
End Semester Examination – January 2010
SCT 317-1 Food Chemistry

Time: One (01) hour

Total **six (06)** questions
Answer **all** the questions

1. i. What are the different categories of cofactors? Explain each of them very briefly.
(6marks)

ii. Briefly explain uncompetitive inhibition.
(4marks)

iii. What are the benefits of oxidoreductases in food processing?
(2marks)

iv. NADP Malate Dehydrogenase is an enzyme which catalyses the following reaction.

Oxaloacetate ⟶ malate

Find the turnover number of the above reaction.
Assume that $V_0 = 0.25S^{-1}$, [S]= 0.5mM, K_m= 0.1mM, [E]= 1.25M
(8marks)

2. i. List down three main factors that decide physical characteristics of an oil or fat.
(3 marks)

ii. Very briefly describe hydrogenation of lipids
(6 marks)

iii. Write two substances that have the capability of inhibiting oxidation in food products
(2 marks)

iv. Write three factors that accelerate lipid polymerization process.
(3 marks)

v. Eventhough it is healthier to take unsaturated fatty acids, highly processed unsaturated fatty acids are not suitable for health. Briefly explain why.
(6 marks)

3. Briefly explain the following;

i. Usage of polyalcohol in food processing (5 marks)

ii. Usage of pectin jells in food processing (5 marks)

iii. Brown sugar melts rapidly than the high purity white sugar (5 marks)

iv. Functions of sugar in jam (5 marks)

4. i. What is high specific heat of water (5 marks)

ii. Why water is considered as a universal solvent? (5 marks)

iii. Briefly explain how water activity control enzymatic reactions. (6 marks)

iv. List down four techniques that can be used in controlling water activity in food items. (4 marks)

5. Write short notes on any two of the following:

i. Conjugated proteins

ii. Tertiary structure of proteins

iii. Gelation of proteins in food products

iv. Protein – protein interactions in bread dough/ fibre formation

(20 marks)