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Daffodil International University

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Department of Nutrition and Food Engineering
Faculty of Health and Life Sciences
B. Sc. in Nutrition and Food Engineering
Final Examination-Spring' 25

Course Code: 0711-2101 **Course Title: Food Chemistry**
Level and Term: L-2, T-1 **Section: 241 All** **Course Teacher Initials: DNS, ZF, MS**
Time: 2 hours **Total Marks: 40**

Splitting any answer is strictly prohibited

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			Marks
1	(a)	How are disaccharides formed? Provide examples using sucrose and lactose.	[CLO1,PLO1,C3] 2
	(b)	Illustrate any two possible epimers of D-glucose.	[CLO1,PLO1,C3] 2
	(c)	Potato or rice becomes soft after boiling but tends to harden again after cooling (aging). Explain this phenomenon based on the structure of carbohydrates.	[CLO1,PLO1,C4] 4
2	(a)	Describe the role of emulsifying and thickening agents in food manufacturing with suitable examples.	[CLO2,PLO2,C2] 4
	(b)	State the purpose of adding food additives in product formulation and list the potential health concerns associated with their use.	[CLO2,PLO2,C1] 4
3.	(a)	What are the functional roles of Sodium, Potassium, Aluminum, and Iron in food processing?	[CLO2,PLO2,C1] 4
	(b)	Briefly explain the stability and degradation of Vitamin A, D, E & K during food processing.	[CLO2,PLO2,C2] 4
3.	(a)	Analyze the key stages of the Maillard reaction and summarize its overall reaction scheme with simplified interpretation.	[CLO3,PLO2,C4] 4
	(b)	Choose some strategies to inhibit non-enzymatic browning.	[CLO3,PLO2,C3] 4
5	(a)	Classify minerals based on the necessity of the human body.	[CLO2,PLO2,C2] 2
	(b)	Define E codes and ADI in the context of food additives.	[CLO2,PLO2,C1] 2
	(c)	Explain how stabilizing agents work in food systems.	[CLO2,PLO2,C3] 2
	(d)	A food company reports lump formation in its powdered drink mix during storage. Suggest suitable additives to solve this issue and explain their functions.	[CLO2,PLO1,C4] 2