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Daffodil International University

Department of Nutrition and Food Engineering
Faculty of Health and Life Sciences
B.Sc. in Nutrition and Food Engineering
Midterm Examination Fall 2026

Course Code: 0721-3207 **Course Title: Food Packaging Engineering**
Level and Term: L-3, T-2 **Section: 241 All** **Course Teacher Initials: DHR/DJA/FAN/HTS**
Time: 1 hour 30 Minutes **Total Marks: 25**

Maintaining the order of the questions is highly appreciated

			Marks
1. a)	Explain two important functions of food packaging in protecting food quality during storage and distribution.	[CLOI, PLOI,C2]	2
b)	A manufacturer plans to transport fresh fruit juice to distant markets. Illustrate how appropriate packaging can help preserve quality and improve consumer convenience.	[CLOI, PLOI,C3]	3
2. a)	Differentiate between Tin Plate (TP) and Tin-Free Steel (TFS) with respect to their coating materials, corrosion resistance, applications, and cost. Support your answer with a labeled figure.	[CLO2,PLO5,C2]	3
b)	Identify two packaging materials commonly used for food products and mention their properties.	[CLO2,PLO5,C3]	2
3. a)	Design a suitable multilayer packaging structure for a moisture- and oxygen-sensitive food product, indicating the function of each selected layer.	[CLO2, PLO5, C6]	2
b)	Analyze the major challenges associated with biodegradable packaging.	[CLO2,PLO5,C4]	3
4. a)	Evaluate why carbon dioxide may be useful for inhibiting spoilage but can also create quality problems if its level is excessive.	[CLO2,PLO5,C5]	2
b)	Justify the importance of controlling oxygen levels in MAP to maintain food quality.	[CLO2,PLO5,C5]	3
5. a)	Fresh fruits continued to ripen rapidly after packaging because of the accumulation of ethylene gas inside the package. Which active packaging system can be used to solve this problem? Briefly explain its mechanism of action.	[CLO2, PLOS, C4]	2
b)	Propose an intelligent packaging system for monitoring the freshness of packaged fish during storage. Identify an appropriate indicator and explain what information it would communicate to consumers.	[CLO2,PLO5,C6]	3