

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY

2025

Fifth Semester

Agricultural Engineering

AI3004 - Storage and Packaging Technology

Regulations - 2021

**Duration : 3
Hrs**

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	Identify the physical properties of grain affecting storability.	L2	1	2
2.	Indicate the types of storage structures.	L2	1	2
3.	Define 'shelf life'.	L1	2	2
4.	Classify the tests performed on the packaging materials.	L2	2	2
5.	Distinguish between hypobaric and hyperbaric storage.	L2	3	2
6.	Differentiate MAP and EMAP.	L2	3	2
7.	Classify the types of metallic cans.	L2	4	2
8.	Compare thermoplastics and thermoset plastics.	L2	4	2
9.	Classify the types of flexible film fabrication methods.	L2	5	2
10.	Identify the advantages of sensors and IoT in food packaging.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Explain the treatments to enhance the shelf life of agricultural commodities.	L3	1	8
	ii Illustrate the Fumigation Processes for bag storage piles.	L2	1	8
	Or			
	b i Explain the quality changes and remedial measures of grains during storage.	L3	1	8
	ii Elaborate on the consequences of bulk and bag storage structures for grain protection.	L2	1	8

12.	a	i	Explain the role and functions of food packaging.	L3	2	8
		ii	Assess the critical factors affecting the food quality and shelf life.	L2	2	8
Or						
	b	i	Illustrate the step by step procedure for estimating the shelf life of products.	L2	2	8
		ii	Assess the importance of performing mechanical tests on packaging materials.	L3	2	8
13.	a	i	Illustrate the working principle and benefits of a controlled atmosphere storage (CAS) packaging system.	L2	3	8
		ii	Analyze the effects of concentrations of compositional gases on fruits and vegetables.	L2	3	8
Or						
	b	i	Elaborate on the working principle and benefits of equilibrium modified atmosphere packaging system.	L2	3	8
		ii	Analyze the effects of scavengers in packaging systems.	L2	3	8
14.	a	i	Examine the environmental impact of glass packaging, comparing it with metal and plastics.	L4	4	8
		ii	Evaluate the role of closures in maintaining product freshness and safety.	L4	4	8
Or						
	b	i	Examine the role of cellulose as a biodegradable packaging material and justify its suitability or limitations compared to synthetic polymers in food and non-food packaging applications.	L4	4	8
		ii	Examine the process of gas-flush sealing in food packaging and assess its effectiveness in extending shelf life, considering factors like barrier properties, food safety, and preservation.	L4	4	8
15.	a		Illustrate the working principle of blow moulding and injection moulding process with a neat sketch.	L3	5	16
Or						
	b		Elaborate on the key features, benefits, applications and challenges of Nano packaging and smart packaging systems.	L3	5	16