Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Sixth Semester

Agricultural Engineering

AI3006 - Food Plant Design and Management

Regulations - 2021

Duration : 3 Hrs *Maximum : 100 Marks*

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

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	What is meant by plant layout?	L1	1	2
2.	List any two factors influencing plant location.	L1	1	2
3.	Define break-even point in plant economics.	L1	2	2
4.	What is a process flow chart?	L1	2	2
5.	Mention two hygienic design considerations in a food plant.	L1	3	2
6.	Write the role of functional design in food plant buildings.	L2	3	2
7.	Why is equipment layout important in food industries?	L2	4	2
8.	State the need for utility consumption flow sheets.	L2	4	2
9.	Define the term “project monitoring” in context of food plants.	L2	5	2
10.	What is meant by plant scale-up?	L2	5	2

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

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	Describe the concept of plant location and list the factors affecting it.	L2	1	8
		ii	Explain the different types of plant layouts with suitable examples.	L2	1	8
			Or			
	b	i	Discuss general design considerations in food plant layout.	L2	1	8
		ii	Describe the significance of human factors and material selection in food plant design.	L2	1	8
12.	a	i	Discuss the process of feasibility analysis and the steps involved in preparing a feasibility report.	L2	2	8
		ii	Explain how plant size and break-even analysis affect economic plant design.	L2	2	8
			Or			
	b	i	Elaborate on computer-aided flow chart development for a food plant.	L2	2	8
		ii	Discuss the importance of plant utilities and how their requirements are estimated.	L2	2	8

13.	a	i	Apply network analysis techniques to develop a food plant project plan.	L3	3	8
		ii	Develop a layout presentation showing the functional design of a hypothetical milk processing unit.	L3	3	8
			Or			
	b	i	Apply hygienic design principles in planning a ready-to-eat meat processing unit.	L3	3	8
		ii	Create a sample capital investment plan for a small-scale fruit juice plant.	L3	3	8
14.	a		Analyze the equipment layout and material movement in a milk and milk products processing plant.	L4	4	16
			Or			
	b		Examine and analyze the layout planning considerations for a fruits and vegetables processing unit.	L4	4	16
15.	a		Evaluate a food processing project using Critical Path Method (CPM) and estimate its cost components.	L5	5	16
			Or			
	b		Analyze and justify the selection of plant layout and cost estimation for a vegetable dehydration plant.	L5	5	16