

Odd Semester 2022

Food Storage and Packaging

Full Marks: 100

Time: Three hours

*The figures in the margin indicate full marks for the questions.*Answer **ANY FIVE** questions.

1.	a)	What is “shelf-life of a food product? How do you define “perishable”, “semi-perishable” and “non-perishable” foods? Discuss with examples for each category.	2 + 6
	b)	Discuss (i) microbial, (ii) enzymatic, (iii) physical, (iv) chemical and (v) mechanical spoilage of food with an example for each type of spoilage.	2×5
	c)	Define food storage.	2
2.	a)	Write short notes on – i. Senescence in fruits and vegetables ii. Deterioration in meat due to frozen storage	2×2.5
	b)	Briefly describe metal silo for food grain storage using a schematic diagram, appropriately label its various structural parts, and state its advantages over other types of storages of food grains.	8
	c)	Describe <i>Kanaja / Kothi</i> storage of food grains using a simple schematic diagram. What is the storage temperature range maintained for grain storage	6 + 1
3.	a)	Discuss the impacts of postharvest / post-processing time-period on (i) texture, (ii) flavor, (iii) color and (iv) nutritional composition of food.	4×2.5
	b)	What are the six important deteriorations in fruits and vegetables that can be reduced / inhibited by refrigerated (3° – 7°C) storage having high (90 – 95%) relative humidity.	7

	c)	What is modified atmospheric packaging, and how does it help store cut fruits and vegetables for longer periods of time?	3
4.	a)	How does a zero-energy cool chamber (ZECC) function as a cold storage for fresh vegetables?	5
	b)	Explain (with a schematic diagram) a continuous individually quick-frozen meat / fish processing line. Give an example of (i) a convective and (ii) a conductive freezer used for frozen storage of meat products.	8 + 2
	c)	How do the pores in shell affect quality of shell egg? What is pasteurization of milk, and what is its time/temperature combination?	2.5+ 2.5
5.	a)	Write the various functions of food packaging.	5
	b)	Differentiate between Tin can and Tin-free can.	5
	c)	Describe the manufacturing process of 2-Piece Cans by draw and redraw (DRD) Technique.	10
6.	a)	What are the raw materials used for manufacturing of Glass?	5
	b)	Explain the manufacturing process of Glass bottles by Blow and Press process. Give a schematic diagram.	10
	c)	Write Advantages and Dis-advantages of Glass as food packaging material.	5