Q. Code: 223666

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Sixth Semester

OE18202 – INTRODUCTION TO FOOD MANUFACTURING

(Common to all branches)

(Regulation 2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Understand the basic principle and application of refrigeration used for freezing in food industries.	**3**
CO 2	Understand the applications of drying and dehydration.	**3**
CO 3	Make use of the application of thermal processing of food materials.	**3**
CO 4	Utilize the need for hurdle technology and minimal processing for certain food.	**3**
CO 5	Apply the food processing regulations and analyze the advantages and disadvantages of food additives.	**3**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Why is proper air circulation important in cold storage facilities?	**1**	**2**
2.	Distinguish the effect of refrigeration and freezing on food products.	**1**	**2**
3.	In what scenario might a fluidized bed dryer be a good choice?	**2**	**2**
4.	How can the size and shape of food impact drying efficiency?	**2**	**2**
5.	Differentiate between High-Temperature Short-Time and Low-Temperature Long-Time methods.	**3**	**2**
6.	Outline the key steps involved in commercial canning operations.	**3**	**2**
7.	What are the key criteria for a minimally processed food product?	**4**	**2**
8.	How does the hurdle effect contribute to the safety of fermented foods?	**4**	**2**
9.	How can naturally occurring toxins in food be mitigated during processing and storage?	**5**	**2**
10.	List the benefits and risks associated with using food additives in food processing.	**5**	**2**

PART- B (5 x 14 = 70 Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	How does cryogenic freezing differ from conventional freezing methods?	**(7)**	**1**	**3**
	(ii)	Explore the potential benefits and challenges associated with using	**(7)**		

cryogenic freezing for food preservation.

(OR)

(b)	**(i)**	Compare and contrast direct and indirect methods of freezing.	**(7)**	**1**	**3**
	(ii)	Evaluate the factors influencing the selection of a freezing method for a large-scale commercial food processing operation.	**(7)**		
12. (a)	**(i)**	Evaluate the advantages and disadvantages of continuous drying methods compared to batch drying methods.	**(7)**	**2**	**3**
	(ii)	Discuss the design principles of a tray dryer and its suitability for different food products.	**(7)**		

(OR)

(b)	**(i)**	Compare and contrast the principles of freeze drying with conventional drying methods.	**(7)**	**2**	**3**
	(ii)	Explain the working principle of a fluidized bed dryer and its advantages for drying food items.	**(7)**		
13. (a)		Critically evaluate the role of commercial canning operations in ensuring food safety. Analyze the factors that influence the design and efficiency of canning processes.	**(14)**	**3**	**3**

(OR)

(b)		Compare and contrast the effectiveness of different thermal processing methods for inactivating foodborne pathogens. Discuss the impact of these methods on food quality and safety.	**(14)**	**3**	**3**
14. (a)	**(i)**	Compare and contrast the traditional methods of food preservation with the principles of hurdle technology.	**(7)**	**4**	**3**
	(ii)	Explain minimal processing techniques are being implemented in the food industry with real-world examples.	**(7)**		

(OR)

(b)	**(i)**	Critically evaluate the advantages and limitations of thermal processing methods for minimal food processing.	**(7)**	**4**	**3**
	(ii)	Compare and contrast thermal methods with non-thermal minimal processing techniques.	**(7)**		

		Marks	CO	RBT LEVEL
15. (a)	Design a comprehensive classification system for food additives based on their chemical structure and technological function. Provide examples for each category and discuss their specific applications in the food industry.	**(14)**	**5**	**3**
	(OR)			
(b)	Evaluate the safety and efficacy of various artificial and natural sweeteners. Discuss the technological challenges and opportunities associated with formulating low-calorie and sugar-free foods while maintaining desirable taste and texture.	**(14)**	**5**	**3**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Food contamination can occur at various stages from farm to fork. Analyze the sources and health risks associated with physical, chemical, and natural toxin contamination in food. Discuss strategies for minimizing contamination throughout the food supply chain.	**(10)**	**5**	**3**

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