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M.E. / M. TECH DEGREE EXAMINATIONS, MAY 2023
 Second Semester
BY22008 - ADVANCED FOOD PROCESSING AND PACKAGING TECHNOLOGIES
(Biotechnology)
(Regulation 2022)

TIME: 3 HOURS

MAX. MARKS: 100

COURSE OUTCOMES	STATEMENT	RBT LEVEL
1	Identify the various food constituents and the role of microorganisms in food processing.	2
2	Apply the knowledge gained on various thermal food processing methods to improve the shelf life of food products.	3
3	Choose the non-thermal food processing methods for producing food products with enhanced shelf life.	5
4	Select the appropriate preservation techniques used in food preservation.	5
5	Opt the suitable packaging media and packaging type for storing food products.	5

PART - A (20 x 2 = 40 Marks)

(Answer all Questions)

	CO	RBT LEVEL
1. Elucidate the role of essential fatty acids in food.	1	2
2. List out the importance of yeast in food industry.	1	2
3. Describe the disease caused by a Gram-positive, rod-shaped, anaerobic, spore-forming, motile bacterium with the ability to produce botulinum and its implications on human health.	1	2
4. Classify food based on their ease of spoilage.	1	2
5. List the significance of microwave heating in food processing.	2	2
6. Elaborate the factors affecting the quality of food during infra-red heating process.	2	2
7. Compare direct and indirect extrusion.	2	2
8. Outline the importance of hydrostatic extrusion.	2	2

9. Illustrate the effects of ionizing radiations in food.	3	2
10. Explain the principle behind the type of filtration used to recover and concentrate whey proteins from whey.	3	2
11. Mention the benefits of fermented foods.	3	2
12. Outline the importance of the preservation process of edible products in an acid solution, usually vinegar, or in salt solution.	3	3
13. Which type of heat treatment method is used for fruits and vegetables processing primarily to inactivate natural food enzymes and give its importance?	4	3
14. List out the sources of irradiation used for food preservation.	4	2
15. Paraphrase the significance of the process in which a food, usually a vegetable or fruit, is scalded in boiling water, removed after a brief, timed interval, and finally plunged into iced water or placed under cold running water.	4	3
16. Explain the advantages of food preservation method that employs the process of heating and sealing the food in containers for the purpose of storage over the other preservation methods.	4	3
17. Mention the properties of glass to be used as a primary packaging media.	5	3
18. Differentiate retort packaging and aseptic packaging.	5	2
19. Compare CAP with MAP.	5	2
20. Comment on recycling of used food packets.	5	2

PART - B (5 x 10 = 50 Marks)

	Marks	CO	RBT LEVEL
21.(a) A food industry produces food product with desired food ingredients along with ingredients used for improving flavour, appeal, texture and consistency. In this context, classify the direct and indirect ingredients used for enhancing the above properties of the food product in detail.	(10)	1	3
(OR)			
(b) In a food processing industry, the processed food is packed using appropriate packing materials and stored for marketing. After few weeks, it was observed that some of the packed foods are spoiled due to various intrinsic and extrinsic factors. In this context, explain the various intrinsic and extrinsic factors which causes the food spoilage.	(10)	1	3
22.(a) Distinguish the heat processing methods by ohmic and infrared heating.	(10)	2	3

(OR)

(b) Elaborate the importance of extrusion and co-extrusion processes in food processing and its advancements. (10) 2 3

23.(a) Outline the importance of hurdle technology in food processing and its various types. (10) 3 4

(OR)

(b) Analyze the need of reverse osmosis in food industry. Explain how does reverse osmosis works for food processing. (10) 3 4

24.(a) Illustrate pasteurization process and highlight the importance of HTST, LTHT and UHT methods of pasteurization. (10) 4 4

(OR)

(b) Criticize the factors affecting the quality of frozen foods in detail. (10) 4 4

25.(a) Examine the importance of metals, plastics and wood as primary packaging media. (10) 5 4

(OR)

(b) Summarize on organizing food storage, handling and distribution for improving current economic scenario. (10) 5 4

PART - C (1 x 10 = 10 Marks)

(Q.No.26 is compulsory)

	Marks	CO	RBT LEVEL
26. Analyze in detail about the current status and development trends in food packaging and its impact on environmental issues.	(10)	5	5
