

Total number of printed pages: Programme (PG)/1st Semester/PFET 102

2022

Recent Trends in Food Engineering and Technology

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

1.	a)	With neat labelled diagram discuss Spray dryer and write its application in the food Industry.	10																		
	b)	Write a brief note on Definition, Process and Examples of Filtration. Write down the seven steps of water purification process.	10 (2+2+2+4)																		
2.	a)	How microwaves generate heat in a food material?	10																		
	b)	Describe the functioning of magnetron in microwave heating system.	10																		
3.	Differentiate the following																				
	a)	Drying and Dehydration	5																		
	b)	Distillation and Crystallization	5																		
	c)	Conventional Heating and Microwave Heating	5																		
	d)	Single Screw Extrusion and Twin Screw Extrusion	5																		
4.	a)	Define the term – Pasteurization. Explain the working principle of UHT processing.	2+8=10																		
	b)	Write the importance of blanching of food commodities. Detail the working mechanism of any two blanching systems.	2+8=10																		
5.	a)	Determine the F_0 value for the thermal processing of canned green beans by using the data given in the table below: <table border="1"><thead><tr><th>Time (min)</th><th>Temperature (°C)</th></tr></thead><tbody><tr><td>0</td><td>30</td></tr><tr><td>2</td><td>40</td></tr><tr><td>4</td><td>50</td></tr><tr><td>6</td><td>75</td></tr><tr><td>8</td><td>90</td></tr><tr><td>10</td><td>100</td></tr><tr><td>12</td><td>110</td></tr><tr><td>14</td><td>114</td></tr></tbody></table>	Time (min)	Temperature (°C)	0	30	2	40	4	50	6	75	8	90	10	100	12	110	14	114	8
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0	30																				
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		16	120		
		18	120		
		20	116		
		22	110		
		24	103		
		26	105		
		28	102		
		30	100		
	b)	Explain the working mechanism of following retort systems (any two)			6+6=12
		(i). batch retort systems			
		(ii). crateless retorts			
		(iii). continuous rotary cooker			
		(iv). hydrostatic sterilizer			
6.	a)	Briefly explain the concept of modified atmospheric packaging of foods.			10
	b)	Differentiate direct and indirect contact freezing systems. Explain about any two of the direct contact freezing systems.			2+8=10
7.	a)	Define the term- Hurdle technology. Write short notes on the application of hurdle technology in foods.			2+8=10
	b)	Write short notes on Freeze Dryer (with neat labelled diagram)			10

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