Total number of printed pages: **02** **Programme (Diploma)/5th Semester/DFET 501**

2024

Food Engineering Operations-I

Full Marks: 100

Time: Three hours

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

*Answer **any five** questions.*

1.	a)	Define Size reduction? Discuss different objective of size reduction process. Briefly discuss different methods/forces of size reduction.	3+3+4=10
	b)	Define Crystallization? Write short notes on Nucleation. List out different equipment's involved in crystallization process.	3+3+4=10
2.	a)	Discuss the list of different unit operations involved in food processing industry during separation process. Give example of application.	7+3=10
	b)	Explain the functioning of Belt conveyor with a neat diagram.	10
3.	Differentiate the following (any two)		
	a)	Compression and Shearing forces in Size reduction	10
	b)	Wet basis and Dry basis of moisture content	10
	c)	Drying and Dehydration	10
	d)	Single screw Extruder and Twin Screw Extruder	10
4.	a)	What do you mean by Filtration? Discuss different factors which affects flirtation process.	3+7=10
	b)	With neat labeled diagram explain batch type pasteurizer.	3+7=10
5.	a)	Describe a screw conveyor with its application in food processing.	10
	b)	Describe a bucket elevator with a neat diagram and its application in food processing.	10

6.	Write short notes on the following (any four)		
	a)	Homogenizer	5
	b)	Law of conservation of energy	5
	c)	Bucket elevator	5
	d)	Pneumatic Conveyor	5
	e)	Magnetron in Microwave	
7.	a)	Write the law of conservation of mass? Write all different steps to be followed during material balances.	10
	b)	In an evaporator, dilute material enters and concentrated materials leave the system. Water is evaporated during the process. If I is the weight of the dilute material entering the system, W is the weight of water vaporized, and C is the weight of the concentrate, write an equations, that represents the total mass balances for the system.	10
8.	a)	Explain the functioning of hammer mill with a neat diagram.	10
	b)	Write short notes on crushing and grinding.	10