Total number of printed pages: 2 **UG/5th Semester/UFET502**

2024

Food Process Engineering

Full Marks: 100

Time: Three hours

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

Answers any five (5) questions

<table>
<tr><td>1.</td><td>a)</td><td>Define Drying?
Discuss principle and Mechanism of drying.
Write a note on factors which affect rate of drying</td><td>2+5+3=10</td></tr>
<tr><td></td><td>b)</td><td>500 kg of paddy at 23% moisture content (wb) is dried to 12% moisture content (db) for milling. Calculate
(i) The amount of moisture removed in drying.
(ii) The initial moisture content (db) and final moisture content in (wb).
(iii) What shall be the moisture content (db) when final weight is 186 kg.</td><td>10</td></tr>
<tr><td>2.</td><td>a)</td><td>The result of EMC determination are given below
<table><tr><th>Experiment</th><th>Temperature</th><th>Relative Humidity</th><th>EMC</th></tr><tr><td>Experiment No.-1</td><td>60^{0}C</td><td>40%</td><td>8.65 %, db</td></tr><tr><td>Experiment No.-2</td><td>30^{0}C</td><td>50%</td><td>10.51 %, db</td></tr></table>From above data, compute the constant C and n for Henderson/s equation</td><td>10</td></tr>
<tr><td></td><td>b)</td><td>What do you mean by EMC?
Write down the different models associated with EMC of agricultural</td><td>10</td></tr>
</table>

		products	
3.	Differentiate the following (any four)		4X5=20
	a)	Constant Rate Period and Falling rate Period	
	b)	Falling Film Evaporator and Rising Film Evaporator	
	c)	Drying and Dehydration	
	d)	Wet basis and Dry basis of moisture content	
	e)	Bound moisture content and un-bound moisture content	
	f)	Relative humidity and percentage humidity	
4.	a)	With need labelled diagram discuss Humidifier system.	10
	b)	Describe in a tabular form the advantages and dis-advantages of various evaporation systems.	10
5.	a)	List out and discuss different process in psychometric chart with diagram.	10
	b)	Describe with a neat diagram drum dryer and its application in food processing.	3+7=10
6.	Write short notes on the following (any four)		4X5=20
	a)	Factors affecting Evaporation process	
	b)	Calendria Evaporator	
	c)	Factors affecting filtration process	
	d)	Forward Feeding arrangement	
	e)	Contact Drying	
	f)	De-Humidifier	
7	a)	With need labelled diagram discuss Freeze Dryer.	10
	b)	Write a short note on Henderson's equation.	10

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