Total No. of printed pages = 3

19/5th Sem/UFET502

2021

FOOD PROCESS ENGINEERING

Full Marks – 100

Time – Three hours

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

Answer any *five* questions.

1. (a) How de-humidification of air is done? Describe typical humidification equipment with neat labelled diagram. 5+5=10

   (b) Describe relationship between relative humidity and percentage humidity. 5

   (c) Write short notes on Colling tower. 5

2. (a) How evaporation is different from distillation? Discuss various components of an evaporator. 5+5=10

   (b) What is meant by multiple effect evaporators? Discuss different feeding methods in a multiple effect evaporator. 5+5=10

[Turn over

3. (a) How do you classify foods for the purpose of dehydration ? Describe briefly the principles of drying. 5+5=10

(b) Describe with a neat diagram a rotary dryer and its application in food processing. 10

4. (a) Why does the need arise to find various advanced drying techniques ? 5

(b) What are various types of advanced drying technique ? 5

(c) What criteria do you follow for selection of a dryer in food processing ? 10

5. (a) What do you mean by EMC ? Write down the importance of EMC ? 5+5=10

(b) With neat labelled diagram / schematic diagram / line diagram discuss (any *two*) : 5×2=10

(i) Heating and Dehumidification Process

(ii) Evaporative Cooling

(iii) Mechanism of Drying.

6. Write short notes on any *four* of the following : 4×5=20

(a) Electrical resistance method of moisture content determination

(b) Wet bulb temperature

(c) Drum dryer

(d) Henderson's equation (EMC)

(e) Batch Crystallizer

(f) Bound Moisture.

7. Differentiate the following (any *four*) of the following : 4×5=20

(a) Drying and Dehydration

(b) Falling film and Rising film evaporator

(c) Constant rate period and Falling rate period

(d) Thin layer drying and deep bed drying

(e) Wet bulb temperature and Dry bulb temperature

(f) Bound moisture and Unbound Moisture.