

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2025)

CLASS: BTECH
BRANCH: FOOD ENGINEERING AND TECHNOLOGY

SEMESTER : IV
SESSION : SP/2025

SUBJECT: FE201 PRINCIPLE OF FOOD PROCESSING AND PRESERVATION

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
-

		CO	BL
Q.1(a)	Differentiate between moisture content and water activity. Draw the relationship between moisture content dry basis and moisture content wet basis	[2] 1	2
Q.1(b)	With a suitable graph explain how water activity plays crucial role in food preservation. 500 kg of paddy at 22% moisture content (wb) is dried to 14% moisture content (Wb) for milling. Calculate the amount of moisture removed in drying.	[3] 3	3
Q.2(a)	Explain the sorption isotherm curve and Hysteresis effect	[2] 3	2
Q.2(b)	What do you mean by 'EMC' ? Write down the different models associated with EMC of agricultural products. State the importance of EMC	[3] 4	1
Q.3(a)	Calculate the equilibrium moisture content of brinjal seed at relative humidity (RH) of 10 % and temperature of 50°C using Henderson's equation. Given that constant 'c' = 6.5×10^{-6} and 'n' = 1.8	[2] 3	3
Q.3(b)	Illustrate the drying curve with importance of critical moisture content.	[3] 5	4
Q.4(a)	Explain the reverse osmosis process	[2] 2	2
Q.4(b)	Differentiate between freeze concentration and freeze drying	[3] 2	2
Q.5(a)	Describe with a neat diagram a drum dryer and its application in food processing	[2] 2	2
Q.5(b)	Assess how evaporation is different from distillation and drying? What are various components of an evaporator? Describe a falling film evaporator system with a neat diagram	[3] 3	5

:::::25/02/2025:::::E