

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSc/Pre-PhD
BRANCH: FOOD TECHNOLOGY

SEMESTER : VIII/NA
SESSION : SP/2023

SUBJECT: FT424 POST HARVEST ENGINEERING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Explain the different post-harvest treatments used to increase the shelf life of fruits and vegetables? Differentiate between modified atmospheric packaging and controlled atmospheric packaging?	[5] 1	2
Q.1(b)	Explain the functions of packaging? For fruits and vegetable packaging, decide the major criteria's need to be followed.	[5] 5	5
Q.2(a)	Describe the influence of moisture content, relative humidity, temperature on the cereal and pulse storage?	[5] 2	1
Q.2(b)	Describe the importance of air movement in side storage structure? Differentiate between dip bin and shallow bin?	[5] 4	2
Q.3(a)	Differentiate free moisture and bound moisture? Describe the difference between the drying rate curve observed during drying of rice and sand in a static dryer at 50 °C.	[5] 2	2
Q.3(b)	Explain hysteresis curve with ink bottle theory. 500 kg paddy at 22% moisture content (wb) is dried to 14% moisture content (wb). Calculate the amount of moisture removed.	[5] 3	3
Q.4(a)	Explain the Types and causes of spoilage occur during storage?	[5] 2	2
Q.4(b)	Explain how respiration heat impacts the storage stability of grains and recommend the structural design to avoid the above problem.	[5] 3	5
Q.5(a)	Differentiate Conveying and Elevating. With diagram explain flatbed idler and trouted bed idler?	[5] 1	2
Q.5(b)	A fan delivers Air at a flow rate 15 m ³ /s against static pressure of 150 mm water gauge. Calculate the static efficiency of the fan. The power required to operate the fan is 30 kW.	[5] 3	3

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