

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

**CLASS: IMSc./PRE-PHD
BRANCH: FOOD TECH**

**SEMESTER: IX / I
SESSION: MO/2025**

SUBJECT: FT502 FOOD PROCESSING PLANT ENGINEERING & LAYOUT

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 handbook/Graph paper etc., to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	What is plant layout? Describe the factors that should be taken into account in deciding the location of the Bakery plant.	[5] 1	1
Q.1(b)	Draw a Dairy Plant layout diagram, discuss the objectives of plant layout and the types of locational analysis required.	[5] 1	1
Q.2(a)	Draw a flow diagram that can be used as a proposed framework to support the industrial designers.	[5] 2	2
Q.2(b)	Discuss the various FSSAI license categories and the standards required for equipment and containers in food processing facilities.	[5] 2	2
Q.3(a)	Discuss the Process or functional layout and the advantages and disadvantages of the process or functional layout.	[5] 3	3
Q.3(b)	Calculate the break-even point in units and in sales revenue, if a food company produces 100,000 cans of Rasgulla annually with fixed costs amounting to ₹30,000 per year. The variable cost per can includes ₹2.20 for materials, ₹4.00 for labour, and ₹0.80 for overhead, making a total variable cost of ₹7.00 per can, with the selling price set at ₹12.00 per can.	[5] 3	4
Q.4(a)	Design a food processing plan diagram and explain the symbols used for conveying and feeding, along with their corresponding diagrams.	[5] 4	5
Q.4(b)	Explain the Scope of food processing industries in India and various government schemes supporting food processing enterprises.	[5] 4	4
Q.5(a)	Discuss about the location requirements for Bakery Establishment and prepare a neat and clean layout for the bakery industry.	[5] 5	4
Q.5(b)	Describe the stages of food processing plant installation.	[5] 5	4

:20/11/2025:E