## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
### TEST -2 EXAMINATION- 2025
#### B.Tech-VIII Semester (BT/BI)

COURSE CODE (CREDITS):21B1WBT831 (03)          MAX. MARKS: 25
COURSE NAME:Food Processing and Engineering
COURSE INSTRUCTORS:Dr Anil Kant, Dr Ashok Nadda          MAX. TIME: 1 Hour 30 Min

*Note:* (a) *All questions are compulsory. Use of a calculator is allowed.*
(b) *The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

| Q.No | Question | CO | Marks |
|---|---|---|---|
| Q1 | a. A milling operation requires 15kWh for grinding a material at a flow rate of 150Kg/h from 1 cm to 1 mm in size. How much power will be required if the same material needs to be brought down to 0.1 mm in size at a flow rate of 100 Kg/h? Calculate using either Rittinger or Kicks law. <br><br> b. It is desired to crush a materia at a flow rate of 5 tons per hour. The size of feed is such that 80% passes 3 mm sieve and 80% of product is to pass 0.5 mm sieve. The work index of material is 4.5 kWh/ton. | IV | 8 |
| Q2 | Discuss the design and working of any two of the following equipment. Draw suitable diagram wherever required i) Roller mill ii) Bread slicing equipment iii) Plate Heat exchanger iv) Jacketed pans | III | 4 |
| Q3 | a. Demonstrate your understanding about co-current and counter current flow conditions in heat exchangers and differences between these. <br><br> b. Blasting of boilers in production units often results in fatal accidents. Write a brief note on maintenance of a boiler highlighting the key vulnerable components and guidelines for their safe operations. | III | 6 |
| Q4 | a. What is the difference between homofermentative and heterofermentative lactic acid bacteria (LAB)? How does LAB contribute to food fermentation? <br><br> b. What are the main characteristics of the genus Lactobacillus? Why is Lactobacillus commonly used in probiotic formulations?What is the significance of Streptococcus in dairy fermentation? | II | 7 |