



Department of Food Technology
School of Interdisciplinary Sciences and Technology
Jamia Hamdard, New Delhi-110062
END SEM EXAMINATION (Dec,2025).
M Sc (Sem I)

Page, Name
Roll No.....
12.12.25

Paper Title: Unit Operations in Food processing; Paper Code: -MFSC-103

Time allotted: 2Hrs 30Min

Max Marks: 60

Important: At the END, mention how many questions from each section you have attempted.

Note: Write to the point. Do not insert margins in the answer sheet. Before answering make sure you have mentioned the Question No. & Section. No continuation sheets will be provided.

Section-A (2 Marks each, Attempt All)

- Q1. Explain the principle of fluidisation? PO:1/CO:1
Q2. What is cryogenic Grinding? What is the major industrial application of cryogenic grinding? PO:1/CO:1
Q3. What do you understand by Freeze concentration? PO2:/CO:2
Q4. Is Blanching a unit operation or unit process justify? PO:2/CO:4
Q5. What do you understand by sensible heat and latent heat of vaporisation? PO:1/CO:5

Section- B (Attempt any 5) (6 Marks Each)

- Q6 Enlist in detail the unit operation and unit process in Bakery industry. PO1:/CO:2
Q7 Define sedimentation and the underlying principle of sedimentation in detail. PO1:/CO:2
Q8 What is the theoretical capacity of screw conveyor if $D=0.35\text{m}$, $d=0.08\text{m}$, $p=0.20\text{m}$, $n=80\text{rev/min}$? Assuming mat fills 80% flight calculate the actual capacity of screw conveyor. PO1:/CO:2
Q9 Two centrifuges are being compared in a laboratory. Centrifuge A spins with a rotor radius of 6 cm, completing 12,000 revolutions each minute. Without directly using "g-force" in the statement, determine the magnitude of the force acting on a sample relative to gravity. Centrifuge B, on the other hand, exerts a force equal to 1300 times gravitational acceleration when its rotor radius is 10 cm. Work backward to find the rotational speed (in RPM) that would generate this effect. PO2:/CO:4
Q10 Explain in detail different types of mixing operations and their underlying principle. A six-blade Rushton turbine with a diameter of 0.45 m is operated at 380 RPM in a tank containing water ($\rho = 1000 \text{ kg/m}^3$). The power number of the impeller is 5.2. Calculate the power consumed by the impeller. PO1:/CO:5
Q11 Explain the different material handling equipment's and explain in detail the working of screw conveyor. PO1:/CO:4
Q12 What do you understand by PSA? What are the methods of PSA? PO:2/CO:2

Section C (Attempt any 2) (10 Marks Each)

- Q13. Explain in detail the mixers employed for dry solids. PO1:/CO:2
Q14. Explain in detail filtration and its underlying principle. Write in detail about the equipment's of filtration. PO1:/CO:3
Q15. What do you understand by size reduction? Explain in detail about the Size reduction theory and laws PO1:/CO:4
Q16. Explain in detail the unit operation cleaning and different wet and dry cleaning techniques. PO1:/CO:5