**ST. JOSEPH’S UNIVERSITY, BENGALURU -27**

**M.Sc (FOOD SCIENCE AND TECHNOLOGY) – II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2023**

**(Examination conducted in May 2023)**

**FST 2122 – PRINCIPLES OF FOOD ENGINEERING**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 50**

**This paper contains 1 printed page and FOUR parts**

**I. Answer any Four of the following 3x4=12**

1. List the names any two unit operations and give their principles.

2. Define F value with an example.

3. What is Plate freezer?

4. Define Forced convection. Give an example.

5. What is Specific heat?

6. Define Fourier’s law of heat transfer.

**II. Answer any Two of the following 5x2=10**

7. Explain the drying method with the drying curve. Write its applications in food industry.

8. A thermal process is accomplished by instantaneous heating to 138°C followed by a four-second hold and instantaneous cooling. Estimate the lethality at 121°C when the thermal resistance (z) for the microorganism is 8.5°C.

9. Mention the different types of Precooling methods and its importance.

**III. Answer any Two of the following 10x2= 20**

10. Describe the various kinetics of reactions occurring in processed foods.

11. Explain the principle and mechanism of Hydrostatic sterilizer.

12. Write a note on Reynolds number and its applications in Fluid mechanics.

**IV. Answer the following 8x1=8**

13. The solute lowers the freezing vapour pressure of a solvent resulting in lowering of freezing point of the solution when compared to the solvent. Identify and describe the phenomenon.