



Date:

Registration number:

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU-27
M.Sc. FOOD SCIENCE AND TECHNOLOGY – II SEMESTER
SEMESTER EXAMINATION: APRIL 2022
(Examination conducted in July 2022)
FST2119 – PRINCIPLES OF FOOD ENGINEERING

Time- 2 ½ hrs

Max Marks-70

This question paper contains **02** printed pages and **four** parts

I. Answer any FIVE of the following.

5x3=15

1. Define Ohm and give its applications.
2. Define and give the significance of specific heat.
3. List a few design problems faced in Aseptic Packaging.
4. What is microbial survival curve?
5. Write a note on commercial sterilization system.
6. What is nucleation? List the different types.
7. What are the objectives of Freezing?

II. Answer any FIVE of the following.

5x5=25

8. Explain the First Law of Thermodynamics.
9. Elaborate on the quality changes occurring during storage of foods.
10. Discuss the various kinetics of reactions occurring in processed foods.
11. Describe in detail the working of a Hydrostatic Sterilizer.
12. Define D value and F value with equations.
13. Explain the principle of freezing using freezing curve.
14. Write a brief note on Heat transfer by forced convections.

III. Answer any TWO of the following.

2x10=20

15. Explain the various Pasteurization and Sterilization methods based on slowest heating methods.
16. A formulated food product contains the following components – water 80%, protein 2%, carbohydrate 17%, fat 0.1% and ash 0.9%. Predict the specific heat in W/kg K using Choi's and Oko's model.
17. Derive Fourier's Law. Mention the assumptions of Fourier's law

IV. Answer the following.

1x10=10

18. You own a green pea Farm. In order to sell your product in the market as a convenient frozen food product, identify the best freezing method. With a flow chart explain the various steps involved in the freezing method.