



Register Number:
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ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU-27
M.Sc. FOOD SCIENCE AND TECHNOLOGY - I SEMESTER
SEMESTER EXAMINATION - OCTOBER 2019
FST 1119 – PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time- 2 1/2 hrs

Max Marks-70

This paper contains 2 printed pages and 4 parts

I. Answer any Five of the following

5x3=15

1. Write how MoFPI is functioning for the welfare of the farmers. List the name of four institutes of national importance in the field of food processing.
2. Explain high hydrostatic pressure for preservation of foods and its application.
3. With a neat sketch differentiate fluidized bed drying and vibro-fluidised bed drying.
4. Diagrammatically illustrate the recovery of heat during pasteurization.
5. Write a short note on the mixing, fermentation and degassing steps involved in baking of bread and its purpose.
6. Define freezing point and mention the factors influencing freezing and rate of freezing.
7. Write the function and side effects of food additives.

II. Answer any Five of the following

5x5=25

8. Mention the different types of membrane processing based on their pore size and applications of each.
9. Calculate the energy (in ergs) imparted by irradiation when frequency of photons is 3600 cycles/min. [Given: plank's constant = 4.13 eV sec].
10. How is MAP useful during packaging of food products? List the factors influencing the packaging of foods and the gases used in MAP giving reasons for their usage.
11. What is the principle of canning? Discuss its advantages and potential hazards.
12. Describe infrared radiation processing, its principle, types of IR with their wavelength. [Heat exchange (Q) by radiation between two black bodies at different temperatures of 2°C and 277K , may be calculated for surface area of 1 m^2 using the Stefan–Boltzmann law. Given Stefan–Boltzmann constant as σ (sigma)].
13. Write notes on requirements for irradiation and safety of irradiated foods. Does irradiation induce radioactivity in foods? Support your answer with a

suitable reasoning.

14. What are the roles of additives in food processing? Mention any two permitted and two prohibited food colours. Give any two preservatives with their permissible limits.

III. Answer any Two of the following

2x10=20

15. Draw a schematic diagram of a microwave generator giving the mechanism of heat generation when microwave is employed, along with its advantages. Briefly give its applications in food processing

16. Discuss the applications and different types of evaporators

17. Describe the following drying methods along with their principle, mechanism and application.

- a. Freeze dryers
- b. Spray dryers
- c. Drum dryers
- d. Vacuum dryers
- e. Fluidized bed dryers

IV. Answer the following

1x10=10

18. Elaborate on the five industrial catalysts employed in food industries. The answer should include substrate, micro-organism, purpose of usage and mode of action

OCT 2019