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 1 printed pages and 4 parts

Answer any Five of the following **5x3=15**

1. Why is food processing is important? Give the name of four institutes of national importance in the field of food processing.
2. Write the principle of vacuum evaporation during drying.
3. How is MAP useful during packaging of food products? List its advantages and limitations.
4. Give the principle of HHP for preservation of food along with its advantages.
5. With a neat sketch differentiate fluidized bed drying and vibro-fluidised bed drying.
6. What is retort processing? Give its applications.
7. List any six food additives of different types with examples citing their usage.

I. Answer any Five of the following **5x5=25**

8. What are the concerns of ionizing radiations for food preservation? List the advantages and limitations of electron beam radiation.
9. Calculate the energy (in ergs) imparted by irradiation when frequency of photons is 3600 cycles/min. [Given: plank's constant = 4.13eV sec]
10. Explain the steps involved in canning process.
11. Differentiate between microwave and infrared radiations.
12. What are heat exchangers? Describe different types of heat exchangers.
13. Discuss the factors affecting the inactivation of micro-organisms during the application of pulse electric field.
14. Differentiate between type I and Type II preservatives? Give 3 examples of each, along with their functions.

II. Answer any Two of the following **2x10=20**

15. Explain the principle and mechanism of the following with at least one factor affecting the efficiency of processing.
    a. Dielectric heating
    b. Microwave heating
    c. Infrared radiation
    d. Ionizing radiations
16. Describe different types of drum dryers.
17. Give in detail the description of spray drying method.

III. Answer the following **1x10=10**

18. Discuss the effect of Infrared radiations on industrial catalysts. What approach will you follow to avoid effect (if any) on the process? Calculate the heat energy (Q) exchange by radiation between two black bodies at different temperatures of 2°C and 277 K, may be calculated for surface area (A) of 1 m^2 using the Stefan–Boltzmann law. [Given Stefan–Boltzmann constant as σ (sigma)]

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