Name: **Enrolment No:**	

UPES

End Semester Examination, December 2023

Course: Food Preservation Technology **Semester: III**

Program: B.Tech(FT) **Duration: 3 Hours**

Course Code: HSFT 2005 **Max. Marks: 100**

Instructions: Read each question carefully and answer

S. No.	Section A MCQs (20Qx1.5M= 30 Marks)	Marks	COs
Q1	Statement 1: Freezing with nitrogen or carbon dioxide gas is rapid freezing. Statement 2: Supercooling is a property of food products. a) True, False b) True, True c) False, False d) False, True	1.5	CO4
Q2	Statement 1: When food items are frozen, there is a drop in temperature followed by a further drop when they freeze. Statement 2: Fish should be rapidly frozen, not slowly frozen. a) True, False b) True, True c) False, False d) False, True	1.5	CO4
Q3	Freon group of refrigerants are: a) Inflammable b) Toxic c) Non-inflammable and toxic d) Nontoxic and non-inflammable	1.5	CO4
Q4	When the crystallization process takes place for a long time, the size of the crystals is _____ a) Small b) Large c) No crystals formed d) None of the mentioned	1.5	CO4
Q5	Ice crystals in frozen meat should be formed by rapid crystallization. a) True b) False	1.5	CO4

Q6	Which of the following dryer is used to dry seeds? a) Spray dryer b) Cabinet tray dryer c) Pneumatic dryer d) Fluidized bed dryer	1.5	CO2
Q7	The temperatures used for canning foods ranges from ____. a) 0-20 degree C b) 20-60 degree C c) 60-100 degree C d) 100-121 degree C	1.5	CO2
Q8	Which of the following is the time-temperature combination for HTST pasteurization? a) 72°C to 74°C for 15 to 20 seconds b) 135°C to 140°C for 2 to 4 seconds c) 63°C for 30 minutes d) 57°C to 68°C for 15 min	1.5	CO2
Q9	Which of the following is the time-temperature combination for Sterilization? a) 72°C to 74°C for 15 to 20 seconds b) 135°C to 140°C for 2 to 4 seconds c) 63°C for 30 minutes d) 115 – 120°C for some 10 – 20 minutes	1.5	CO3
Q10	Which of the following dryer is best for powdered or granular samples? a) Fluidized bed dryer b) Drum dryer c) Cabinet tray dryer d) Pneumatic dryer	1.5	CO3
Q11	Heat exchanger works on which of the following principles? a) Direct heating b) Indirect heating c) Slow heating d) Fast heating	1.5	CO3
Q12	Which of the following is the target microbe in commercial sterilization? a) Pseudomonas aeruginosa b) Bacillus anthracis c) Salmonella typhi d) Clostridium botulinum	1.5	CO3

Q13	Which process is generally carried out by retorts? a) Pasteurization b) Freezing c) Blanching d) Sterilization	1.5	CO3
Q14	The quality problem for sliced apples and potatoes is: a) Enzymatic browning b) Lipolytic rancidity c) Hydrolytic rancidity d) Putrefaction	1.5	CO2
Q15	In drying of fruit which chemical is used to minimize browning: a) Carbon dioxide b) Sulphur dioxide c) Benzene d) Chlorophyll	1.5	CO2
Q16	The main causative spoilage organisms of dried fruits and vegetables are: a) Mould b) Yeast c) Bacteria d) All of them	1.5	CO1
Q17	Subjecting fats to high temperature in the presence of oxygen such that fats deteriorate is called _____. a) Hydrolytic rancidity b) Auto-oxidation c) Thermal decomposition d) Lipolysis	1.5	CO3
Q18	Rice has a higher water activity than apples. a) True b) False	1.5	CO6
Q19	Viruses can be eliminated by irradiation. a) True b) False	1.5	CO6
Q20	Which of the following evaporators cannot be used for milk? a) Scraped surface evaporators b) Fluidized bed evaporators c) Plate-and-frame type evaporators d) Batch Pan	1.5	CO5
Section B **(4Qx5M=20 Marks)**			

Q 1	Define the concentration method. Differentiate between dehydration and drying. Describe three food dryers in brief.	5	CO5
Q 2	Define tonne of refrigeration. Explain the working of refrigeration system with components.	5	CO4
Q 3	Describe the importance of blanching also explain various applications of blanching. List down reasons for food spoilage. **(2.5+2.5 marks)**	5	CO3
Q 4	What do you understand by crystallization? Differentiate between slow and quick freezing. **(2.5+2.5 marks)**	5	CO4
Section C (2Qx15M=30 Marks)			
Q 1	Nancy works at a cheese processing unit. They subject the cheese to oxidation. Which of the following comments pertaining to the above scenario are correct? **(2 marks)** a) Oxidation is necessary for products like cheese b) Lipid Oxidation is otherwise a major concern for the food industry c) Deterioration of fats and oils is called rancidity d) All of the mentioned. i. What are the various factors responsible for rancidity? **(3 marks)** ii. What is frying and its principle? **(5 marks)** **iii.** Describe different food frying methods. **(5 marks)**	15	CO3
Q 2	Sunil owns a fruit and vegetable processing unit, and it produces canned fruit slices as its final product. Answer the following questions: a) Describe the principle and working of the canning process with the steps of the canning process. **(10 marks)** b) Suggest and describe the canning process for two food commodities. **(5 marks)**	15	CO5
Section D (2Qx10M=20 Marks)			
Q 1	Explain the following processes **(2 marks each)**: a) Thawing b) Roasting c) Concentration d) Canning e) Evaporation	10	CO5
Q 2	What is food irradiation? Describe the concept of microwave processing.	10	CO1