Name: **Enrolment No:**	

UPES

End Semester Examination, May 2024

Course: Food Processing and Preservation Technology **Semester: VI**

Program: Integrated (B.Sc.+M.Sc.(N&D)) **Duration: 3 Hours**

Course Code: HSFT3014 **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	CO1
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	CO1
Q3	Freon group of refrigerants are: a) Inflammable b) Toxic c) Non-inflammable and toxic d) Nontoxic and non-inflammable	1.5	CO1
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	CO1
Q5	Ice crystals in frozen meat should be formed by rapid crystallization. a) True b) False	1.5	CO1

Q6	Which of the following dryers is used to produce powder from the solution? a) Spray dryer b) Cabinet tray dryer c) Pneumatic dryer d) Fluidized bed dryer	1.5	CO2
Q7	What is the full form of the LSU dryer? a) Louisiana State University dryer b) Low simple universal dryer c) Low and slow unit dryer d) Level steady unit dryer	1.5	CO2
Q8	Evaporation, desiccation and dehydration all mean the same thing. a) True b) False	1.5	CO2
Q9	Which of the following is an advantage/use of dried food items? a) Lesser cost and minimum labour required b) Limited processing equipment and minimum food storage requirements c) Reduction in distribution costs d) All of the mentioned	1.5	CO2
Q10	Which of the following dryers is the convectional drying equipment with enclosed insulated chambers? a) Fluidized bed dryer b) Drum dryer c) Cabinet tray dryer d) Pneumatic dryer	1.5	CO2
Q11	The temperatures used for canning foods range from ____. a) 0-20 degrees C b) 20-60 degree C c) 60-100 degree C d) 100-121 degree C	1.5	CO3
Q12	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	CO3
Q13	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

Q14	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
Q15	Which process is generally carried out by retorts? a) Pasteurization b) Freezing c) Blanching d) Sterilization	1.5	CO3
Q16	The quality problem for sliced apples and potatoes is _____. a) Enzymatic browning b) Lipolytic rancidity c) Hydrolytic rancidity d) Putrefaction	1.5	CO5
Q17	In drying of fruit which chemical is used to minimize browning ___. a) Carbon dioxide b) Sulphur dioxide c) Benzene d) Chlorophyll	1.5	CO5
Q18	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	CO5
Q19	Rice has a higher water activity than apples. a) True b) False	1.5	CO4
Q20	Which of the following dryers is used to dry seeds? a) Spray dryer b) Cabinet tray dryer c) Pneumatic dryer d) Fluidized bed dryer	1.5	CO3

Section B **(4Qx5M=20 Marks)**			
Q 1	List out the importance of the drying process.	5	CO4
Q 2	Differentiate between slow and quick freezing.	5	CO2
Q 3	Explain the refrigeration cycle. Differentiate between sensible and latent heat.	5	CO1
Q 4	What do you understand by cooling load? List down the major contributors to cooling/refrigeration load.	5	CO1
Section C **(2Qx15M=30 Marks)**			
Q 1	Ramesh is assigned the task of designing cold storage. a) Describe the step-by-step design process with the calculation formula required. **(10 marks)** b) What are the multiple purposes of load calculations? **(5 marks)**	15	CO3
Q 2	Sunil owns a fruit and vegetable canning unit. Answer the following questions: a) Describe the principle and working of mango canning with a flow chart. **(5 marks)** b) What are the different types of can spoilage? **(10 marks)**	15	CO2
Section D **(2Qx10M=20 Marks)**			
Q 1	What are drying and dehydration? Describe different methods of moisture content estimation.	10	CO5
Q 2	What is the frying process? Describe different types of frying.	10	CO5