GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
PRINCIPLES OF FOOD PRESERVATION
FT402

TIME ALLOTTED: 3 HOURS | FULL MARKS: 70

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)
Answer any *ten* from the following, choosing the correct alternative of each question: 10×1=10

			Marks	CO No
1	(i)	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	CO1
	(ii)	Which of the following is a factor that affects the storage stability of food? a) Type of raw material used b) Quality of raw material used c) Method/effectiveness of packaging d) All of the above	1	CO1
	(iii)	Rate of dehydration increases by a) increasing the surface area b) reducing the RH of the heating medium c) increasing air flow d) all of these	1	CO5
	(iv)	Which of the following microorganism eliminated in canned foods? a) Mycobacterium tuberculosis b) Coxiella burnetii c) Clostridium botulinum d) Lactobacillus	1	CO2
	(v)	Which of the following microorganism survive at -9 to -17 degree C? a) Salmonella b) Staphylococci c) Bacilli d) Clostridium	1	CO2
	(vi)	What are the recommended substances to reduce water activity? a) Fructose b) Sodium Chloride c) Sucrose d) All of the mentioned	1	CO5

(vii)	Phosphatase enzyme present in milk is destroyed in which of the following processes? a) Sterilization b) Canning c) Dehydration d) Pasteurization	1	CO3
(viii)	In the high-temperature short-time (HTST) method of pasteurization, milk is exposed to a temperature of a) 132◦ F b) 145 ◦ F c) 161 ◦ F d) 120 ◦ F	1	CO3
(ix)	Which of the following methods is possible to kill bacteria? a) Keeping the time constant from previous calculations and maintaining a certain temperature b) Bringing the temperature down to a certain value such that the bacteria die in 10 minutes c) Keeping the temperature constant and keeping them at that temperature till the time they die d) All of the mentioned	1	CO4
(x)	Which of the following sentences is NOT true? a) Bacteria can be killed by treating with heat, both, dry and moist heat treatment b) Cell protein coagulates in the absence of air c) Order of death by moist heat is logarithmic in nature d) None of the mentioned	1	CO4
(xi)	Which of the following sentence is true with respect to food storage/preservation? a) Each food type has a potential storage life b) The mechanical abuse that food has received during storage/distribution does not affects its storage stability c) Both A and B d) None of the above	1	CO2
(xii)	Shredded cabbage is the starting product for which of the following fermented food? a) Sauerkraut b) Pickles c) Green olives d) Sausage	1	CO3

GROUP – B
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

			Marks	CO No
2.		Explain the importance of the factors controlling the growth and activity of microorganisms in food fermentation process.	5	CO3
3.	(a)	What do you mean by hurdle technology in food preservation ?	2	CO5
	(b)	What are the advantages and disadvantages of hurdle technology ?	3	CO5
4.		What is browning? How it can be controlled for preserving food?	5	CO4
5.		How can pickling preserve food despite the differences of climates, cultures, etc.?	5	CO2
6.		Explain food irradiation. Are irradiated foods still nutritious? Briefly explain	5	CO1

GROUP – C
(Long Answer Type Questions)
Answer any ***three*** from the following: **3×15=45**

			Marks	CO No
7.	(a)	Describe the theory of construction of freezing curve of food materials.	7	CO3
	(b)	Describe the different freezing processes mentioning their specific application areas for food preservation	8	CO3
8.	(a)	How would you Select Thermal Processing Conditions for canning?	7	CO2
	(b)	What are D value, Z value, D0 value and F value for thermal process time calculation?	5	CO2
	(c)	Define water activity	3	CO1
9.	(a)	Draw a flow sheet for Osmotic Dehydration	5	CO5
	(b)	Briefly focus the methods of ultrasound used in food preservation	5	CO5
	©	With a flow diagram, explain the minimal processing technology in a manner to guarantee the food safety and preservation.	5	CO3
10.	(a)	What do you mean by the term water activity , and explain its significance in food preservation process	6	CO4
	(b)	Draw a schematic diagram of a tray dryer and describe its arrangements of construction with advantages.	9	CO3
11.	(a)	Describe the theory of construction of freezing curve of food materials.	7	CO1
	(b)	Describe the different freezing processes mentioning their specific application areas for food preservation.	8	CO1