GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
FOOD PROCESS TECHNOLOGY IV (EDIBLE FATS AND OILS)
FT602

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 gummy matter present in cotton seed oil is (a)Gossypol; (b) Phosphatidyl serine; (c) Phosphatidyl choline; (d) Cephalin	1	CO4
	(ii)	Mention the name of invisible fat from the following list: (a) Margarine (b) Butter (c) Egg; (d) Ghee	1	CO1
	(iii)	Melting point of fat is _____ and melting point of oil is _____ (a)Higher, higher (b) Lower, lower (c) Higher, lower (d) Lower, higher	1	CO1
	(iv)	Butter can be substituted by a product called (a) Shortenings; (b) Confectionery (c) Margarine; (d) Hydrogenated fat	1	CC
	(v)	Saponification value signifies (a) Degree of unsaturation, (b) chain length, (c) average molecular weight (d) rancidity	1	CO1
	(vi)	Zero-Trans of a product can be obtained by the process of (a) Interesterification (b) Hydrogenation (c) Emulsification (d) esterification	1	CO3

(vii)	According to the legislation of many countries including India the fat content in margarine should not be less than (a) 70% (b) 80% (c) 50% (d) 40%	1	CO3
(viii)	Salad oil can be prepared by (a) Deodorization (b) Winterization (c) Hydrogenation (d) Interesterification	1	CO4
(ix)	The characteristic flavor of butter is due to (a)linoleic acid (b) caproic acid (c) butyric acid (d) caprylic acid	1	CO1
(x)	Example of saponifiable component of crude fat is (a) Squalene (b) carotenoid (c) Phospholipid (d) Sterol	1	CO4
(xi)	A triglyceride contains lauric acid (12:0), linoleic acid (18:2), and palmitoleic acid (16:1). How many moles of H_2 are required to completely hydrogenate this triglyceride? (a)two (b)six (c) three (d) four	1	CO1
(xii)	Hydrogenation is the conversion of unsaturated acid groups into the saturated one by a catalyst: (a) Ti (b) Pb (c) Ni (d) Sn	1	CO2

GROUP – B
(Short Answer Type Questions)
Answer any ***three*** from the following: **3×5=15**

			Marks	CO No.
2.		Mention the name of the instrument for measuring color of oil and also indicates its working principle.	5	CO1
3.	(a)	What do you understand by the term Cocoa butter replacers?	2	CO3
	(b)	How cocoa butter substitute is produced from natural vegetable oil?	3	CO3
4.	(a)	What is pressing?	1	CO2
	(b)	Describe the mode of operation of screw pressing.	4	CO2

5.	(a)	How soap can be recovered as a byproduct from oil refining process?	5	CO4
6.	(a)	Describe the free radical mechanism of antioxidants.	5	CO1

GROUP – C
(Long Answer Type Questions)

Answer any ***three*** from the following: **3×15=45**

			Marks	CO No.
7.	(a)	Write the objectives of bleaching process in oil refining.	4	CO2
	(b)	Explain the basic principle of this process.	3	CO2
	(c)	Discuss continuous vacuum bleaching techniques with essential conditions.	8	CO2
8.	(a)	Discuss the two major characteristics of vegetable oils and fats.	7	CO1
	(b)	Mention two important examples of vegetable oils by indicating their sources and compositions.	4	CO1
	(c)	Give the chemical structure of triglyceride.	2	CO1
	(d)	Why coconut oil exists in solid state at room temperature?	2	CO1
9.	(a)	Discuss the product characteristics of margarine.	5	CO3
	(b)	Explain the steps used for the manufacture of margarine.	5	CO3
	(c)	How you can understand that margarine is a plastic fat?	5	CO3
10.	(a)	With a flow-chart describe how phosphatides are recovered from soy-bean oil?	6	CO4
	(b)	How oil can be recovered from spent earth.	5	CO4
	(c)	With a flow-chart explain how protein isolates are recovered from oil seeds.	4	CO4
11.	(a)	What do you understand by ester –ester interchange?	3	CO3
	(b)	Give a brief description of interesterification process with mechanism of reaction.	9	CO3
	(c)	What is poisoning of catalyst in hydrogenation process?	3	CO3