GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
Food Process Technology IV (Edible Fats and Oils) (Backlog)
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)	Butter can be substituted by a product called (a) Shortenings (b) Confectionery (c) Margarine (d) Hydrogenated fat	1	CO3
	(iv)	Tristearine is available in (a) mustard oil (b) Butter (c) vegetable ghee (d) None of these	1	CO1
	(v)	Saponification value signifies (a) Degree of unsaturation (b) chain length, (c) average molecular weight (d) rancidity	1	CO1
	(vi)	Which one of the following is a nonglyceride component? (a) vitamin E (b) sterols (c) waxes (d) all of these	1	CO4

(vii)	Selectivity I (S_I) refers to the preferentially exclusive hydrogenation of (a) Oleic to stearic (b) Linoleic to oleic (c) Linolenic to linoleic (d) Linolenic to oleic acid	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.		Explain the process conditions of acid degumming of oil.	5	CO2
3.	(a)	Describe with examples SAFA, MUFA and PUFA.	3	CO1
	(b)	How DG and MG can be associated with TG?	2	CO1
4.	(a)	Explain the term plastic fat.	2	CO3
	(b)	Discuss the role of plastic fats in bakery industries.	3	CO3
5.	(a)	Distinguish between hydrogenated and interesterified product in terms of their stability frying nutritional quality.	5	CO3

6.		Write a short note on pyrolisis of oil.	5	CO2

GROUP – C
(Long Answer Type Questions)

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

			Marks	**CO No**
7.	(a)	What do you understand by selectivity and isomerization in case of a hydrogenation process?	6	CO3
	(b)	Describe the influence of catalysts for hydrogenation process.	4	CO3
	(c)	What are the product characteristics of hydrogenated fat?	5	CO3
8.	(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
9.	(a)	Define salad oil.	2	CO4
	(b)	How clear salad oil can be made: Explain the process with example.	6	CO4
	(c)	Describe dry fractionation and solvent fractionation process.	4	CO2
	(d)	Discuss the product characteristics of salad oil.	3	CO1
10.	(a)	With a flow-chart describe how phosphatides are recovered from soy-bean oil?	6	CO4
	(b)	With schematic diagram explain how soap stock are recovered and treated?	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)	Discuss some important commercial applications of interesterified products.	3	CO3