53 (FPT 612) OLFT

2018

FOOD PRODUCT TECHNOLOGY-V

(Oils and Fats)

Paper : FPT 612

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* Differentiate between Oil and Fat. What do you understand by Crude fat and True fat ? Cite *two* examples each of visible and invisible fat. 3+2+2=7

   (b) Differentiate between TAG, DAG and MAG by mentioning structure. Write down the structure of Triolein and Tristearin. 3+2+2=7

   (c) Write down the structure of EPA and DHA. Classify them according to omega category. Give an example of conjugated double bond containing PUFA. 2+2+1+1=6

Contd.

2. *(a)* Define Flash point and Smoke point of oil/fat. What is Cold Test and SFI? 2+2=4

(b) Briefly mention the hydrolytic rancidity of oil/fat. What do you mean by autoxidation/oxidative rancidity of lipid? What is antioxidant? Cite *two* examples of synthetic antioxidants with structure. 4+3+1+3=11

(c) Indicate the significance of saponification value and iodine value. Why animal fat is susceptible towards oxidation? What is R.M value? 3+1+1=5

3. *(a)* Give the functional and nutritional significance of oils and fats. 6

(b) Describe the principle of oil extraction by mechanical pressing method. What type of oil bearing material is suitable for pressing? What is it's difference with solvent extraction method? 4+1+2=7

(c) Describe with flow diagram the extraction of soyabean oil from soyabean. Which is the byproduct of this process? Which fatty acid is dominant in coconut oil? 5+1+1=7

4. *(a)* Discuss with flow diagram the extraction and recovery of cottonseed oil from cottonseed. 5

(b) What are the essential components of rice bran ? Why these constituents are so important ? Describe with flow diagram the extraction and recovery of Rice Bran Oil (RBO) from rice.
3+2+5=10

(c) Differentiate between oil cake and de oiled cake. What is oil meal ? Which component is rich in oil meal ? What is prepress-solvent extraction ?
2+1+1+1=5

5. *(a)* Differentiate between physical refining and alkali refining process with flow diagram. How alkali refining differs from miscella refining ? What is once refined oil ? What is the utility of drying before bleaching process ? 6+3+1+2=12

(b) What is Degumming operation ? Explain different methods of degumming. What are the different phospholipids present in soyabean oil ? Mention the use of Soy Phospholipid in food processing industry.
2+4+1+1=8

6. *(a)* Differentiate between single and double bleached lecithin. Discuss continuous vacuum bleaching techniques with essential operating conditions. What is Spent Earth ? How oil is extracted from spent earth ? What is the utility of spent earth ? 2+7+1+1+1=12

(b) What is RBD oil ? Briefly describe the continuous deodorization process with diagram. What is deodorization loss ? 1+6+1=8

7. Write short notes on ***any four*** of the following : 5×4=20

(a) Interesterification in product development

(b) Product characteristics of hydrogenated fat and role of catalyst during hydrogenation process

(c) Cocoa butter equivalent

(d) Specialty fat

(e) Winterization of oil

(f) Shortening agent in bakery industry.