

Total No. of printed pages = 5

19/2nd Sem/PFET 202

2022

**EMERGING FOOD PROCESSING
TECHNOLOGY-II : OILS, FATS, BAKERY
AND CONFECTIONERY**

Full Marks – 100

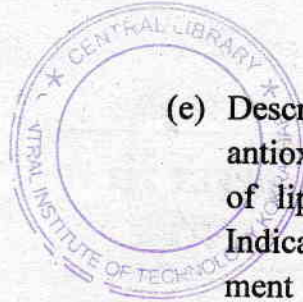
Time – Three hours

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

Attempt any *five* questions from the following.

1. (a) Describe the chemical reaction involved during hydrolytic rancidity of palm oil. 3
- (b) Why vegetable oil is more shelf stable than animal fat? 2
- (c) Represent the structures of ETA and ALA and indicate its omega character. 4
- (d) Mention the reaction between palmitoleic acid and iodine. 4

[Turn over



(e) Describe the mechanism of action of antioxidants for the prevention of oxidation of lipid. What is the reversion of lipid? Indicate only two techniques for the measurement of rancidity. $5+1+1=7$

2. (a) State the importance of the saponification number and the Koettstorfer number. Cite one example of an emulsifier and state its function. $4+2=6$

(b) Explain with reaction how many hydrogen atoms are required to hydrogenate EPA. 3

(c) Mention the fatty acid profile in any three edible oils. Write the measurement formula of % FFA in Palm oil. $6+2=8$

(d) What is meant by polymorphism? Cite the example of natural antioxidants available in RBO. $2+1=3$

3. (a) Describe the SCFE of edible oil from oilseed. State the difference in extraction between Mechanical Pressing and SCFE. $4+2=6$

(b) Differentiate between Physical refining and Chemical refining process with a flow diagram. 4

- (c) Differentiate between single bleached and double bleached lecithin. Give two examples each of hydratable and non-hydratable phosphatides. What is treat? $2+2+1=5$
- (d) Describe the enzymatic degumming process? What is meant by miscella refining? $3+2=5$
4. (a) Differentiate between dewaxing and winterization in refining. 3
- (b) Describe the process of continuous deodorization with a design of double shell deodorizer. 5
- (c) Briefly describe the bleaching conditions in continuous bleaching operation. Give the mathematical expression of the bleaching process. $4+2=6$
- (d) Discuss interesterification of lipid. Give the composition of deodorizer distillate with respect to soybean oil. What do you understand by fractionation of oil? $3+1+2=6$
5. (a) Differentiate between Cocoa butter replacer, Cocoa butter equivalent and Cocoa butter substitute. 3



(b) How butter is manufactured? Differentiate among butter, margarine and hydrogenated fat. 3+3=6

(c) Describe the role of major three ingredients in bakery product manufacturing. 6

(d) Explain the characteristics of different flours used in bakery product manufacturing. What is gluten and what is its function? 3+2=5

6. (a) Mention the list of physicochemical tests performed in the quality evaluation of wheat flour. Describe briefly one physical and one chemical parameter determination technique. 2+6=8

(b) Give some examples of dough testing instruments. Explain the mechanism of a sophisticated instrument widely used in the bakery industry. 2+4=6

(c) Describe the different types of mixers used in the bakery industry with their functions. 6

7. (a) Briefly describe the production of confectionery gum with its composition. 4

(b) Explain the confectionery moulder with a suitable diagram. 3

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(c) Describe the various types of mixing processes employed in the bakery industry.

4

(d) Discuss the various processing operations involved in confectionery production.

3

(e) Describe briefly a widely used continuous oven in biscuit manufacturing. Give a simplified diagram of a bakery oven.

3+3=6

