



## ASSIGNMENT BOOKLET

# DIPLOMA PROGRAMME IN DAIRY TECHNOLOGY (DDT)

Academic Sessions: January 2023 and  
July 2023 sessions



School of Agriculture  
Indira Gandhi National Open University  
New Delhi – 110068

Dear student,

As you are aware that for theory, the weightage to the term-end examination will be 80% and the weightage to the continuous assessment will be 20%. The continuous assessment is in form of assignments. There is one assignment for each course i.e. total eight assignments for the programme. Each assignment will be of 50 marks which ultimately will be converted to have weightage of 20 % of theory. Instructions to format your assignments are as follows:

### Instructions to format your assignments

Before attempting the assignments, please read the following instructions carefully.

1. On top of the first page of your answer sheet, please write the details exactly in the following format.

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Enrollment no:.....

Name:.....

Address:.....

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Course Code:.....

Course Title:.....

Study Centre:.....

Date:.....

(Name and Code)

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**Please follow the above format strictly to facilitate evaluation and to avoid delay.**

2. Use foolscap size plain or ruled paper for writing your answer.
3. Leave 4 cm margin on the top, bottom and left of your answer sheet, write on both the sides with margin and tie /staple all the pages carefully (course-wise).
4. Clearly indicate question no. and part of the question being solved while writing answers.
5. You should write in your own handwriting and only handwritten assignments are evaluated.
6. **Last date** for submitting the assignments for **January 2023 Session is 30<sup>th</sup> September 2023** and for **July 2022 Session is 31<sup>st</sup> March 2024** (Check University website for date extension, if any).
7. Assignments have to be sent to the coordinator of your study centre.
8. We strongly suggest that you should retain a copy of your assignment responses.

Wishing you good luck.

**(Vijayakumar, P)**  
**Programme Coordinator,**  
**School of Agriculture, IGNOU**

### Assignment – 1

**Course Code: BPVI – 011**

**Course Title: MILK PRODUCTION AND QUALITY OF MILK**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) Describe the advantages of cooperative system. Explain the Anand pattern of cooperative societies. 10
- 2) Explain the significance of clean milk production. Describe the strategies to improve the quality of milk at dairy farm level. 10
- 3) Describe the different methods of milk procurement along with the merits and demerits of each. What are the different criteria of milk payment and which of these is the best and why? 10
- 4) Define physico-chemical properties of milk. How the knowledge of physico-chemical properties of milk helps in effective quality control and processing of milk to different dairy products? 10
- 5) Describe the different factors which increase the growth of microorganisms in milk. How microbial spoilage of milk can be controlled? 10

### Assignment – 2

**Course Code: BPVI – 012**

**Course Title: DAIRY EQUIPMENT AND UTILITIES**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) What type of materials are required for fabrication of dairy equipment? Make a product flow line diagram for a dairy plant receiving 10,000 litre milk and manufacturing butter. 10
- 2) Describe the basic principles and components of refrigeration system. 10
- 3) Describe in detail the boiler mountings (safety and control) and accessories. 10
- 4) Describe the working principles of single and three phase induction motors. Explain why the single-phase motors are not self-starting? 10
- 5) What are the various recharge structures available to recharge rainwater into ground? Explain the working of rainwater harvesting system works? 10

### Assignment – 3

**Course Code: BPVI – 013**

**Course Title: MILK PROCESSING AND PACKAGING**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- Q.1. What considerations are important while planning layout of a milk reception dock and what equipment and devices are required at the reception dock? 10
- Q.2. Explain the different theories of homogenization. What are the advantages and disadvantages of homogenized milk? 10
- Q.3. Explain creaming and factors affecting the creaming rate. What is creaming efficiency? Describe the factors affecting creaming efficiency. 10
- Q.4. Describe different methods used in India for the distribution of processed milk. How does packaging in single use containers reduce the work load in a dairy? 10
- Q.5. Describe the different types of can washers used in the dairy industry. Explain the various steps of “cleaning in place” process. 10

### Assignment – 4

**Course Code: BPVI – 014**

**Course Title: DAIRY PRODUCTS - I**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) What are the different types of cream manufactured in a dairy plant? Describe various defects which develop in cream during its storage. 10
- 2) Define butter. Describe different steps involved in making creamery butter from milk. 10
- 3) Describe different defects in butter and how these defects can be controlled? Describe the different factors affecting composition and analytical constants of Ghee. 10
- 4) What is the principle of manufacture of ghee? Explain grading of Ghee under AGMARK. Also give AGMARK standards of different types of ghee. 10
- 5) Define low fat spread. Give the classification, salient features and ingredient of low-fat spread. 10

### Assignment – 5

**Course Code: BPVI – 015**

**Course Title: DAIRY PRODUCTS - II**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) Describe different factors which influence the quality and yield of khoa. Explain the continuous methods of Khoa making with merits and demerits of each. 10
- 2) Describe the factors which influence the quality of paneer. How the shelf life of paneer can be extended? 10
- 3) Describe in detail the method of manufacturing of Sweetened Condensed Milk (SCM). 10
- 4) Describe different steps involved in the spray drying of milk. What is the purpose of condensing and homogenization of milk during the manufacturing of dried milk? 10
- 5) What are the quality attributes of dried milk? Describe the storage defect of dried milk and their preventive measures. 10

### Assignment – 6

**Course Code: BPVI – 016**

**Course Title: DAIRY PRODUCTS - III**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) Describe in detail the method of manufacturing of yoghurt and method of enhancing its shelf life. 10
- 2) Describe the method of manufacture and chemistry of stretch of Mozzarella cheese. How processed cheese is prepared and what are its defects? 10
- 3) Describe different steps in the manufacturing of ice cream. Explain the role of cooling, ageing and homogenization in the quality of ice cream. 10
- 4) Describe the method of preparation of acid and rennet casein. What are the uses of casein and caseinates? List the basic steps in the manufacturing of whey powder. 10
- 5) Describe the advantages of using membrane processes in place of conventional concentration processes. Write about the main applications of membrane process in dairy industry. 10

### Assignment – 7

**Course Code: BPVI – 017**

**Course Title: QUALITY ASSURANCE**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) Define “Food Quality”. Explain the components of food quality. Also, explain the scope of the tasks of quality control in dairy industry as outlined in the FAO document. 10
- 2) Define HACCP. Describe its five preliminary steps and seven principles. 10
- 3) What are the precautions to be taken while taking sample for microbiological analysis of milk and milk products? What are the chemical and microbiological tests generally conducted on raw milk before its acceptance in the dairy plant? 10
- 4) Describe different packaging materials of flexible, rigid and semi rigid categories used for dairy products. 10
- 5) Give the procedure for estimating fat in milk by Gerber method and SNF through lactometer. 10

### Assignment – 8

**Course Code: BPVI – 018**

**Course Title: DAIRY MANAGEMENT AND ENTREPRENEURSHIP**

**Maximum Marks: 50**

**Note: Attempt all the five questions.**

- 1) What are the planning considerations you will keep in mind for the design and layout of a dairy plant? How monitoring and control of milk losses can be done in a dairy plan? 10
- 2) Describe the generally accepted principles of accountancy. Why product costing in an organization is important? Describe different types of costing. 10
- 3) Describe the components of MIS and reporting plan. Describe the importance of logistics in dairying and some decisions that need to be taken for sale efficient logistics. 10
- 4) Describe the need and benefits of performance measurement in an organization. What are the tools and techniques of performance controlling? Describe the key factors in managing a business. 10
- 5) Describe the challenges of operating a small business. Enlist must have skills for an entrepreneur. 10