

ASSIGNMENT BOOKLET

DIPLOMA PROGRAMME IN DAIRY TECHNOLOGY (DDT)

Academic Session : 2020



**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.

Enrollment no:.....
Name:.....
Address:.....
.....
.....

Course Code:.....
Course Title:.....
Study Centre:..... Date:.....
(Name and Code)

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

2. Use foolscap size paper for writing your answer.
3. Leave 4cm margin on the top, bottom and left of your answer sheet.
4. Clearly indicate question no. and part of the question being solved while writing answers.

Assignment No.	Date of Submission
Assignment 1 (BPVI-011) and 2 (BPVI-012)	Before 31 st March
Assignment 3 (BPVI-013) and 4 (BPVI-014)	Before 31 st March
Assignment 5 (BPVI-015) and 6 (BPVI-016)	Before 31 st March
Assignment 7 (BPVI-017) and 8 (BPVI-018)	Before 31 st March

5. Assignments have to be sent to the coordinator of your study centre.
6. We strongly suggest that you should retain a copy of your assignment responses.

Wishing you good luck.

Assignment – 1
Course Code: BPVI – 011

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) Outline the dairy development in India from 1970 onwards and what has been the role of NDDB in it? 5
(b) Describe the advantages of cooperative system and explain Anand pattern of cooperative societies. 5
- Q.2 (a) Outline the scenario of dairying in our country. State the major achievements of Operation Flood Programme. 5
(b) Give the principles of cooperatives. Explain three tier structures of dairy cooperatives. 5
- Q.3. (a) What are the symptoms of heat in cows and buffaloes? Describe artificial insemination (AI). Also give its advantages. 5
(b) Describe the housing, feeding and milking management practices of lactating cows and buffaloes. 5
- Q.4. (a) Define breed and describe the general characteristics of dairy cattle breeds. 5
(b) How can we improve the milk production in local non-descript (Desi) cattle? 5
- Q.5. (a) Describe different factors which increase the growth of microorganisms in milk. 5
(b) Explain how microbial spoilage of milk can be controlled. 5

Assignment – 2
Course Code: BPVI – 012

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) Describe the purpose and functioning of a chilled water supply system used in a dairy plant. 5
(b) Write the importance of water conservation in a dairy plant. Explain important components including their materials of construction of a rainwater harvesting system. 5
- Q.2. Describe the basic principles and components of refrigeration system. 10
- Q.3. Describe in detail the boiler mountings (safety and control) and accessories. 10
- Q.4. (a) Identify and draw important components of a steam boiler. 5
(b) List out boiler mountings and accessories. 5
- Q.5. (a) Explain the working principle of an induction motor. 5
(b) Explain the term power factor. Give causes of low power factor and methods of improving the power factor. 5

Assignment – 3
Course Code: BPVI – 013

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) What are the main considerations and precautions in using sanitizers? Explain the characteristics of a good quality detergent for a dairy plant 5
- (b) Describe the principle and various steps involved in “Cleaning-in-Place” process. How sanitization process is carried out for milk pasteurizer and milk silos under the CIP? 5
- Q.2. (a) Give the principle and procedure for the platform tests conducted on a dairy dock. 5
- (b) Define UHT milk. What are its advantages and disadvantages? Give the salient features of different types of UHT plants. 5
- Q.3. (a) What is creaming efficiency? What are the factors affecting creaming efficiency? 5
- (b) Explain the components and flow diagram of HTST pasteurizer. 5
- Q.4. (a) 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? 5
- (b) What are the considerations you will keep in mind while selecting an appropriate detergent? 5
- Q.5. (a) What are the main considerations and precautions in using sanitizers? 5
- (b) What are different types of can washers used in the dairy industry? Describe various steps of “cleaning in place” process. 5

Assignment – 4
Course Code: BPVI – 014

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) Explain different types of cream separators, factors influencing fat percentage in cream and fat losses in skim milk. 5
- (b) What are different types of cream manufactured in a dairy plant? Describe various defects which develop in cream during its storage. 5
- Q.2. (a) Define churning and explain theories of churning. 5
- (b) Describe the steps with flow diagrams and processing parameters involved in making creamery butter from milk. 5

- Q.3. (a) Describe different defects in butter and how these defects can be controlled? 5
 (b) What do you understand by the term Ghee Constants? Describe different factors affecting composition and analytical constants of Ghee. 5
- Q.4. (a) Give the flow diagram and steps for manufacture of creamery butter. 5
 (b) Write the formulas for: 5
 a) Calculating yield of butter.
 b) Calculation of over-run in butter.
 c) Amount of water to be added for moisture adjustment in butter.
 d) Calculating quantity of salt in butter.
 e) Calculating quality of neutralizer.
- Q.5. (a) Enumerate the common flavour defects observed in butter. Describe how these defects can be controlled. 5
 (b) Enumerate the common body and texture defects observed in butter. Describe how these defects can be controlled. 5

Assignment – 5
Course Code: BPVI – 015

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) Name different types of *Khoa* available in the market. Give gross chemical composition of *Khoa* from buffalo milk and cow milk. Enumerate the factors affecting quality and yield of *Khoa*. 5
 (b) Name various *Khoa* based sweets. Describe the method for preparation of *Burfi*. 5
- Q.2. (a) Describe the factors which influence the quality of paneer. 5
 (b) How the shelf life of paneer can be extended? 5
- Q.3. (a) Describe the continuous methods of *Khoa* making with merits and demerits of each. 5
 (b) Give flow diagram for preparation of rabri making through improved methods. 5
- Q.4. (a) Explain the process and steps involved in the manufacture of Evaporated Milk (EM). 5
 (b) What are the common defects of Concentrated Milk? Give their causes and their preventive measures. 5
- Q.5. (a) Describe the quality attributes of dried milk? 5
 (b) Describe the storage defect of dried milk and their preventive measures. 5

Assignment – 6
Course Code: BPVI – 016

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) Describe the factors affecting fermentation process of a starter culture and method of preparation of the starter culture. 5
(b) Describe in detail the method of manufacturing of yoghurt and method of enhancing its shelf life. 5
- Q.2. (a) Give the flow diagram with processing parameters for manufacture of Dahi. 5
(b) Give the flow diagram with processing parameters for manufacture of Shrikhand. 5
- Q.3. (a) Enumerate the steps involved in manufacture of cheddar cheese. 5
(b) Give the flow diagram for manufacture of mozzarella cheese from buffalo milk using culture. 5
- Q.4. (a) Describe the method of preparation of acid and rennet casein and give the uses of casein and caseinates. 5
(b) How whey solids are commercially preserved? List the basic steps in the manufacturing of whey powder. 5
- Q.5. (a) Give the composition, nutritive and anti-oxidative properties of *Ghee* Residue. 5
(b) What is membrane processing? Give its advantages, and also give the main applications of membrane processing in the dairy industry. 5

Assignment – 7
Course Code: BPVI – 017

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) Explain role of primary senses in judging dairy products. 5
(b) List the most common flavour defects of milk and dairy products and write one main cause of the each. 5
- Q.2. (a) What do you understand by HACCP? Write its five preliminary steps and seven principles. 5
(b) Describe different microbiological tests conducted on milk and milk products. 5
- Q.3. (a) What are the precautions to be taken while taking sample for microbiological analysis of milk and milk products? 5
(b) What are the chemical and microbiological tests generally conducted on raw milk before its acceptance in the dairy plant? 5

- Q.4. (a) Give the procedure for estimating fat in milk by Gerber method and SNF through lactometer. 5
 (b) What are the precautions to be taken while taking sample for microbiological analysis of milk and milk products? 5
- Q.5. (a) Describe important plastic materials used for packaging of milk and milk products. 5
 (b) Give the factors affecting sensory evaluation. 5

Assignment – 8
Course Code: BPVI – 018

Maximum Marks – 50

Note: Attempt all the five questions.

- Q.1. (a) What are the planning considerations you will keep in mind for the design and layout of a dairy plant? 5
 (b) What do you understand by the term “Milk Losses”? How monitoring and control of milk losses can be done in a dairy plant? 5
- Q.2. (a) Give the examples of computer application in dairy industry. 5
 (b) Enumerate the factors affecting human resources requirement of a dairy plant. 5
- Q.3. (a) Enlist factors determining working capital. Also indicate approaches to manage working capital. 5
 (b) What do you understand by cost centre? List different cost centres. Also enlist different techniques used to determine product cost. 5
- Q.4. (a) Describe the main components of a Business Plan. 5
 (b) Describe the importance of key factors in managing a business. 5
- Q.5. (a) Describe the challenges of operating a small business. 5
 (b) Enlist must have skills for an entrepreneur. 5