

# **ASSIGNMENT BOOKLET**

## **DIPLOMA PROGRAMME IN DAIRY TECHNOLOGY (DDT)**

**Academic Session : 2016**



**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 <sup>st</sup> October
Assignment 3 (BPVI-013) and 4 (BPVI-014)	Before 31 <sup>st</sup> December
Assignment 5 (BPVI-015) and 6 (BPVI-016)	Before 31 <sup>st</sup> January
Assignment 7 (BPVI-017) and 8 (BPVI-018)	Before 28 <sup>th</sup> February

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) What is the importance of dairying in our country? Explain the major goals and achievements of Operation Flood Programme. 5
- (b) Describe the advantages of cooperative system and explain Anand pattern of Dairy Cooperative. 5
- Q.2 (a) Explain the differences between selective breeding and cross breeding. Define Artificial Insemination (AI) and give its advantages. 5
- (b) What is the importance of Clean Milk Production? Explain the factors affecting clean milk production at farm level. 5
- Q.3. (a) Describe different methods of milk procurement along with merits and demerits of each. 5
- (b) What is two-axis milk pricing and how do you consider this system of pricing better than other systems? 5
- Q.4. (a) Give the composition of cow and buffalo milk. What is colostrum and its importance? Explain why milk is essential for infants. 5
- (b) Describe important physico-chemical properties of milk. 5
- Q.5. (a) Describe the important factors which influence 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 material used for the manufacturing of milk processing equipment. How the proper knowledge of equipment is essential to select appropriate size, capacity and the performance and maintenance of these equipment? 5
- (b) Describe important factors which are considered in selecting location of a dairy plant. 5
- Q.2. (a) Identify major components of vapour compression refrigeration system and show the arrangement with the help of a diagram. 5
- (b) Describe the basic principle and components of a cold storage. Describe the important insulating materials and their properties used in cold storage 5

- Q.3. (a) Explain the working of a steam boiler with the help of a diagram. 5  
 (b) Enlist important boiler mountings and accessories. 5
- Q.4. (a) Describe the working principles of single phase and three phase induction motors and explain why the single phase motors are not self-start? 5  
 (b) Explain the working principle of a transformer. 5
- Q.5. (a) Explain important components including their materials of construction of a rainwater harvesting system. 5  
 (b) Explain the principle and benefits of water conservation in a dairy plant. 5

**Assignment – 3**  
**Course Code: BPVI – 013**

**Maximum Marks – 50**

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

- Q.1. (a) How chilling of milk affects the microbial growth, keeping quality and physico-chemical properties of milk? 5  
 (b) Explain the steps involved in organisation of a milk collection system. 5
- Q.2. (a) Draw a schematic diagram of HTST Pasteurizer showing important parts and flow of milk. 5  
 (b) Explain principle of homogenization and advantages and disadvantages of homogenized milk. 5
- Q.3. (a) What is creaming efficiency? What are the factors affecting creaming efficiency? 5  
 (b) Describe different types of packaging system and material used for fluid milk. 5
- Q.4. (a) What is UHT processing? Explain the working of Direct Heating UHT system. 5  
 (b) Define special milks. Give the flow diagram for preparation of toned and flavoured milk. 5
- Q.5. What considerations are to be kept in mind while choosing an appropriate detergent for cleaning in a food processing factory? Explain the characteristics of a good quality detergent for a dairy plant. 10

**Assignment – 4**  
**Course Code: BPVI – 014**

**Maximum Marks – 50**

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

- Q.1. (a) Explain the principle of cream separation and 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) Give the composition, standards and nutritive value of butter. 5  
(b) Describe different steps involved in making creamery butter from milk. 5
- Q.3. Define churning of butter and explain different theories of churning. 10
- Q.4. (a) Define analytical constants of ghee. Explain the factors which influence the analytical constants of butterfat. 5  
(b) Give the procedure for AGMARK grading of ghee and give the AGMARK standard of general and special grade of ghee. 5
- Q.5. (a) Name the adulterants most commonly used in Ghee. Describe the tests used to detect these adulterants. 5  
(b) What are the factors affecting keeping quality of Ghee and how the same can be increased? 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) Explain the factors which influence the quality of paneer. 5  
(b) How the shelf life of paneer can be extended? 5
- Q.3. (a) Explain the process and steps involved in the manufacture of Sweetened Condensed Milk (SCM). 5  
(b) What are the common defects of concentrated milk? Give their causes and their preventive measures. 5

- Q.4. (a) Describe the method of manufacture of spray dried milk powder. 5  
 (b) Write quality attributes and common defects of dried milk powders. 5
- Q.5. (a) What is infant food? Describe the virtues of human milk. 5  
 (b) How malted milk food is manufactured? Give the BIS standards for malted milk food? 5

**Assignment – 6**  
**Course Code: BPVI – 016**

**Maximum Marks – 50**

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

- Q.1. (a) What is starter culture? Describe the role of starter culture in the manufacturing of fermented dairy products. What are characteristics of a good starter culture? 5  
 (b) Describe the method of manufacturing of yoghurt and steps to be taken for enhancing its shelf life. 5
- Q.2. (a) Describe the method of manufacture and chemistry of stretch of Mozzarella cheese. 5  
 (b) How processed cheese is prepared and what are its defects? 5
- Q.3. (a) Describe the role of ingredients and processes treatments in the quality of ice cream. 5  
 (b) What are ice cream novelties? Give the method for preparation of Kulfi and Malai ka baraf. 5
- Q.4. (a) Explain the principles and methods of preparation of acid and rennet caseins. 5  
 (b) Give the composition of whey and the basic steps involved in 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 process in the dairy industry. 5

**Assignment – 7**  
**Course Code: BPVI – 017**

**Maximum Marks – 50**

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

- Q.1. (a) What do you understand by the term “Food Quality”? Explain the components of food quality. 5  
 (b) Explain the scope of the tasks of quality control in dairy industry as outlined in the FAO document. 5

- Q.2. (a) Describe quality control management system and its requirements. 5  
 (b) What do you understand by HACCP? Explain its principles. 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) Describe different packaging materials of flexible, rigid and semi rigid categories used for dairy products. 5  
 (b) Give the procedure for estimating fat in milk by Gerber method and SNF through lactometer. 5
- Q.5. (a) What are different types of instruments used in a quality control laboratory of a Dairy Plant? 5  
 (b) Explain role of primary senses in judging dairy products. 5

**Assignment – 8**  
**Course Code: BPVI – 018**

**Maximum Marks – 50**

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

- Q.1. (a) Explain the conception and misconception about the productivity. Describe the factors which enhance the productivity and how the resources can be optimized for achieving good productivity? 5  
 (b) Explain the criteria which are adopted in human resource planning. 5
- Q.2. (a) What are the sources of financing the working capital? Describe the approaches of managing working capital? 5  
 (b) What do you understand by the term account, accounting and accountancy? Describe all the generally accepted principles of accountancy. 5
- Q.3. (a) Describe various computer applications in dairy industry. 5  
 (b) What do you understand by marketing information system? Describe the components of MIS and reporting plan. 5
- Q.4. (a) Explain the need and benefits of performance measurement in an organization. What are the tools and techniques of performance controlling? 5  
 (b) Describe the importance of key factors in managing a business. 5
- Q.5. (a) Describe the basic elements of Programme Evaluation and Review Technique. 5  
 (b) Explain the must have skills for an entrepreneur. 5