

# **ASSIGNMENT BOOKLET**

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

**Academic Session : 2010**



**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 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> March
Assignment 3 (BPVI-013) and 4 (BPVI-014)	Before 31 <sup>st</sup> May
Assignment 5 (BPVI-015) and 6 (BPVI-016)	Before 31 <sup>st</sup> July
Assignment 7 (BPVI-017) and 8 (BPVI-018)	Before 30 <sup>th</sup> September

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) What is the criteria of classification of cattle breeds. List three milk breeds of cross breed cattle and explain the selective breeding and grading up method of breed improvement in cattle. 5  
(b) Describe the significance of clean milk production along with present status and constraints in adoption of clean milk production. 5
- Q.3. (a) Describe different methods of milk procurement along with merits and demerits of each. 5  
(b) What are different criteria of milk payment and which of these is the best and why? 5
- Q.4. (a) How different milk constituents are affected during thermal processing of milk? 5  
(b) List the important physical properties of milk. Which of the physical properties are helpful in detecting the adulteration and microbial spoilage? 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) What is the importance of preventive maintenance and what it involves? What should be recorded in equipment data sheet. 5  
(b) What type of materials are required for fabrication of dairy equipments? 5  
Make a product flow line diagram for a dairy plant receiving 10,000 litre milk and manufacturing market milk and butter.
- Q.2. Describe the basic principles and components of refrigeration system. 10

- Q.3. Discuss different types of boilers and control and safety devices used for boilers. 10
- Q.4. (a) Draw a neat diagram of a distribution transformer and discuss its main parts. 5  
 (b) What is a power distribution system? Describe different system of power distribution. 5
- Q.5. (a) What are the various recharge structures available to recharge rainwater into ground. Explain how does a rainwater harvesting system works? 5  
 (b) Describe aerobic and anaerobic biological treatments for dairy waste water treatment. 5

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

**Maximum Marks – 50**

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

- Q.1. (a) Why planning of a milk collection system is required? What considerations are taken into account in planning milk collection? 5  
 (b) What type of test are conducted on raw milk before it is accepted ? In addition to organoleptic tests which of the rapid physico-chemical tests are performed on raw milk at the reception dock? 5
- Q.2. (a) Why chilling of milk is essential within stipulated time after production? Describe in short the effect of chilling and cold storage on Keeping quality and physicochemical properties of milk? 5  
 (b) Explain creaming and factors affecting the creaming rate. What is creaming efficiency? List the Factors affecting creaming efficiency. 5
- Q.3. (a) Define homogenized milk and explain theories of homogenization. How will you judge the efficiency of homogenization? 5  
 (b) Explain the difference between recombined and reconstituted milk why homogenization is essential in the manufacturing of recombined milk? 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) What factors influence the fat percentage in cream and losses of fat 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 butter as per PFA. Explain different churning theories. 5  
(b) Describe different steps 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) Explain grading of Ghee under AGMARK. Also give AGMARK standards of different types of ghee. 5  
(b) What is the principle of manufacture of ghee? List different method of manufacturing of ghee and describe the creamy butter method in detail. 5
- Q.5. (a) What are the factors which influence the market quality of ghee. How keeping quality of Ghee can be improved? 5  
(b) Name the adulterants most commonly used in Ghee. Describe the tests used to detect these adulterants. 5

**Assignment – 5**  
**Course Code : BPVI – 015**

**Maximum Marks – 50**

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

- Q.1. (a) Discuss different factors which influence the quality and yield of khoa. 5  
(b) Discuss the continuous methods of Khoa making with merits and demerits of each. 5
- Q.2. (a) What are the factors which affect the shelf life of heat desiccated products? How can you extend the shelf life of Khoa based sweets? 5  
(b) Describe different factors which influence the quality of chhana. 5
- Q.3. (a) Discuss different steps in the manufacturing of evaporated milk. 5  
(b) What are the common defects of concentrated milk. Explain the cause of there defects and their preventive measures. 5
- Q.4. (a) Write PFA standards for different types of dried milk and BIS standards for malted milk food. 5  
(b) 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? 5

- Q.5. (a) Discuss the virtues and limitations of malted milk food. How malted milk food is manufactured? 5
- (b) Write quality attributes and common defects of dried milk. 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, give classification and characteristics of a good starter culture. 5
- (b) Give the BIS standards and method of manufacture of shrikhand. 5
- Q.2. (a) Give the method of manufacture of cheddar cheese. 5
- (b) Give the principal and method of manufacture of pasteurized processed cheese. 5
- Q.3. Discuss different steps in the manufacturing of ice cream. Explain the role of cooling and homogenization in the quality of ice cream. 10
- Q.4. (a) Discuss different body and texture defects of ice cream and their preventive measures. 5
- (b) Define overrun of ice cream and enumerate different factors which influence the overrun. 5
- Q.5. (a) Define microfiltration and describe its uses in dairy industry. 5
- (b) Give the manufacturing process and uses of acid casein. 5

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

**Maximum Marks – 50**

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

- Q.1. (a) Define food quality along with important quality characteristics of food. 5
- (b) Why quality aspects of milk and milk products are so unique compared to other food products? 5
- Q.2. (a) Describe quality control management system and its requirements 5
- (b) Enumerate the need for Food laws and standards. Describe national and International agencies responsible for implementations of food regulations. 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) Define sensory evaluation and describe the major applications of sensory evaluation. 5
- (b) Write the types of sensory panels. While conducting sensory evaluation of food which sensory test are adopted? 5
- Q.5. (a) Describe different packaging materials of flexible, rigid and semi rigid categories used for dairy products. 5
- (b) List the non dairy ingredients and their purpose of using in the manufacturing of milk products. Write the standards for acidulates and sweetens. 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) What do you understand by the term account, accounting and accountancy? Describe all the generally accepted principles of accountancy. 5
- (b) Why product costing in an organization is important? Describe different types of costing. 5
- Q.3. (a) What do you understand of marketing information system? Describe the components of MIS and reporting plan. 5
- (b) What is logistics planning. Describe the importance of logistics in dairying and some decisions that need to be taken for sale efficient logistics. 5
- Q.4. (a) Describe the need and benefits of performance measurement in an organization. What are the tools and techniques of performance controlling? 5
- (b) Describe the key factors in managing a business. 5
- Q.5. (a) Describe the challenges of operating a small business. 5
- (b) Discuss must have skills for an entrepreneur. 5