

# **ASSIGNMENT BOOKLET**

## **DIPLOMA PROGRAMME IN VALUE ADDED PRODUCTS FROM FRUITS AND VEGETABLES (DVAPFV)**

**Academic Session : 2018**



**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-001) and 2 (BPVI-002)	Before 31 <sup>st</sup> October
Assignment 3 (BPVI-003) and 4 (BPVI-004)	Before 31 <sup>st</sup> December
Assignment 5 (BPVI-005) and 6 (BPVI-006)	Before 31 <sup>st</sup> January
Assignment 7 (BPVI-007) and 8 (BPVI-008)	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 – 001**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. Define food and explain the major properties of food. (10)
- Q.2. Explain the scenario of food processing in India and World. (10)
- Q.3. a) Why fruits and vegetables are known as “Protective Foods”? Describe the functions of vitamins and minerals in human body. (5)
- b) Enumerate the important steps involved in clean milk production. (5)
- Q.4. a) Differentiate between food infection and food intoxication. (5)
- b) Describe the effect of thermal processing on degradation of nutrients, and microorganisms in food. (5)
- Q.5. a) What is HACCP? Write its principles and advantages. (5)
- b) Describe contaminants and toxic elements associated with food. (5)

**Assignment – 2**  
**Course Code: BPVI – 002**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. a) What is the importance of Post Harvest Management? (5)
- b) Outline maturity indices of important Fruits and Vegetables. (5)
- Q.2. Describe different pre-harvesting factors which effect the post harvest losses and how these losses can be prevented? (10)
- Q.3. Describe the role of temperature, oxygen content and humidity in maintaining the quality of fresh fruits and vegetables? (10)
- Q.4. a) What are the factors affecting transportation of fresh produce? (5)
- b) What are the main causes of spoilage of root, bulb and tuber crops? (5)
- Q.5. a) What do you understand by climacteric and non-climacteric fruits? (5)
- b) Define food additives and explain their importance. (5)

**Assignment – 3**  
**Course Code: BPVI – 003**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. a) What is a balanced diet and how knowledge of Food Chemistry is helpful in formulating balanced diet and nutrition labelling? (5)
- b) Explain different compositional changes taking place during growth and ripening of Fruits. (5)
- Q.2. a) How proteins are classified? Explain the differences between plant and animal proteins. (5)
- b) Explain the relation between water activity and food spoilage. (5)
- Q.3. a) What are preservatives and how these are classified? Explain biologically derived antimicrobials. (5)
- b) What are the different phases of growth in the life of a fruit? Explain different changes during ripening of fruits. (5)
- Q.4. a) How chemical changes during ripening affect the rate of respiration. (5)
- b) What is chilling injury and what are the symptoms of chilling injuries in lemon and mango? (5)
- Q.5. a) Describe the technology of vinegar production by fermentation. (5)
- b) Define wine and outline various microorganisms involved during fermentation step in wine making. (5)

**Assignment – 4**  
**Course Code: BPVI – 004**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. a) Explain the components of refrigeration system, cooling load and coefficient of performance. (5)
- b) Describe different types of evaporators with merits and demerits of each. (5)
- Q.2. Describe different methods of size reduction and enlist different characteristics of an ideal size reducing machine. (10)
- Q.3. a) What is drying? Enumerate different drying methods and explain factors influencing drying process. (5)
- b) Describe the equipment used for the production of juice and pulps. (5)
- Q.4. Describe the method for preparation of Jam and what are the problems encountered in Jam preparation? (10)
- Q.5. Describe general guidelines for layout of a fruit and vegetable processing plant. (10)

**Assignment – 5**  
**Course Code: BPVI – 005**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. Describe the factors which influence the growth and inhibition of microorganisms in food. (10)
- Q.2. What are different means of controlling the microorganisms? On what principle the freezing of food prevents the food spoilage? (10)
- Q.3. a) Define the terms associated with thermal processing: D value, Z value, F Value and 12 D concept. (5)
- b) What is canning? Explain its principles. Write about spoilage of canned products? (5)
- Q.4. Describe different steps in the preparation of beer and vinegar. (10)
- Q.5. a) Differentiate between exotoxins and endotoxins? What are the causative organisms and the foods associated with botulinal food intoxication? (5)
- b) Write the sources and factors affecting the number of microorganisms in fresh Fruits and Vegetables. (5)

**Assignment – 6**  
**Course Code: BPVI – 006**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. a) Explain three heat transfer systems and the conditions where each of these is the best suited. (5)
- b) Describe microwave and ohmic heating. (5)
- Q.2. a) Define water activity and describe its effect on enzyme reactions and on non-enzymatic browning reactions. (5)
- b) Describe different methods of evaporation. (5)
- Q.3. Describe three types of irradiation approved for food irradiation and discussed primary and secondary effects of irradiation. (10)
- Q.4. What are the wastes and byproducts of fruit processing industries? List the byproducts of coconut processing. (10)
- Q.5. a) What are the basic difference between a controlled atmosphere and modified atmosphere storage? (5)
- b) Explain the principle and working of Zero energy cool chamber at farm level. (5)

**Assignment – 7**  
**Course Code: BPVI – 007**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. a) Define food quality and food safety? Explain food quality attributes? (5)  
b) Explain ISI and Agmark. (5)
- Q.2. a) Describe GMP and HACCP and write the requirements of GMP and principles of HACCP? (5)  
b) What is sensory evaluation of food? Explain the merits and demerits of sensory evaluation. (5)
- Q.3. a) Describe in detail how protein is estimated in food products. (5)  
b) Which are the major parameters included in the microbiological examination of water? (5)
- Q.4. Define chromatography and give its classification and principles of different methods of chromatography. (10)
- Q.5. a) What is spectroscopy? Explain the terms wavelength and frequency of electromagnetic radiation. (5)  
b) Differentiate between molecular absorption and atomic absorption spectroscopy. (5)

**Assignment – 8**  
**Course Code: BPVI – 008**

**Maximum Marks – 50**

**Note: Attempt all questions.**

- Q.1. a) What are the must have skills of an entrepreneur? (5)  
b) What is business? Enumerate different sources of business ideas? (5)
- Q.2. Explain various concepts of marketing and how the market is assessed for the start of a business? (10)
- Q.3. Explain four areas of marketing mix with help of examples. (10)
- Q.4. a) What is project report? Enumerate important aspects covered in preparation of project report. (5)  
b) Enumerate sources of finance for an entrepreneur. Name important financial Institutions which are assisting Entrepreneurs. (5)
- Q.5. What an entrepreneur should know about his customer, competitors, competitors and trade practices before fixing the cost of his products? (10)