# WORKSHEET ON HOMESCIENCE

# SUBJECT: HOMESCIENCE

## CLASS : XII

CHAPTER: 5: Public Nutrition and Health

Date: 17/07/2020

1. Explain the following terms:(A) Food Science (B) Food Processing (C) Food Technology (D) Food Manufacturing and (E) Food Spoilage

2. Explain briefly the significance of Food Technology. How has it affected the life of modern housewives, specially working women?

3. List some of the old methods of food preservation followed at home giving examples and their viability in present times.

4. Give a brief account of development of food preservation to its present status.

5. As a prospective food technologist what knowledge and skills does the industry require you to have?

6. What are the basis of classification of processed food?

7. Explain the following briefly:
• Why do we need to process and preserve food?
• What causes food spoilage and renders it unfit for human consumption?
• Food spoilage is generally caused by bacteria. What are the four conditions that bacteria need to grow and multiply?
• What is done in food processing to extend shelf life?
• As a food manufacturer it is a legal requirement to label the product. List the advice and information that should be given to the consumers on these labels.
• How is the information on nutritional values given on the label useful?
• After the completion of 10+2 examination what is the professional scope in the field of Food Processing and Technology?
Chapters.

A.1. a) Food Science : It is a distinct field involving the application of basic sciences such as chemistry and physics, culinary arts, agronomics and microbiology. It is a broad discipline concerned with all the technical aspects of food, beginning with harvesting or slaughtering and ending with cooking and consumption. It deals with the knowledge of biology, physical sciences and engineering to study the composition of foods, changes that occur at various stages from harvest through different processes and storage, causes of their spoilage and the principles underlying food processing. It also deals also with physico-chemical aspects of food, thus helping us to understand the nature and properties of food.

b) Food processing: It is the set of methods and techniques used to transform raw ingredients into finished and semi-finished products. Food processing requires good quality raw materials from either plant and/or animal source to be converted into attractive, marketable and often long shelf-life food products.

**c) Food technology** : Food technology uses and exploits knowledge of Food Science and Food Engineering to produce varied foods. Study of Food Technology gives in-depth knowledge of science and technology, and develops skills for selection, storage, preservation, processing, packaging, distribution of safe, nutritious, wholesome, desirable as well as affordable, convenient foods. Another significant aspect of food technology is to save and utilise all the food produced.

d)Food Manufacturing : It is the mass production of food products using principles of food technology to meet the diverse needs of the growing population.

e)Food Spoilage :Food Spoilage is associated, development of off-flavors, deterioration of textures, discoloration and loss of nutritional value in varying degrees, reducing aesthetic appeal and rendering it unfit/unsafe for consumption. A number of factors can lead to food deterioration or spoilage e.g. pests, infestation by insects, inappropriate temperatures used for processing and/or storage, excessive exposure to light and other radiations, oxygen, moisture. Food is also contaminated by micro organisms [bacteria, fungus and moulds) or chemicals such as pesticides. Food can also be spoiled due to degradation by naturally present enzymes

## 2. Explain briefly the significance of Food Technology. How has it affected the life of modern housewives, specially working women?

Ans. :Food Technology was initially used to serve military needs. In the 20th century, world wars, exploration of space and the rising demand for varied products from consumers contributed to the growth of Food Technology. Products such as instant soup mixes and ready-to-cook items including meals were developed, specially catering to needs of working women. The desire to have seasonal foods all year round increased. Food technologists made efforts to provide both safer and fresher food using new techniques. In the 21st century, food technologists are challenged to produce foods suitable for health and other changing needs of consumers. Food technology has provided a vast variety of safe and convenient foods. In developing countries this rapidly expanding and developing field, has been helpful in improving food security and has opened avenues for employment at all levels.

## 3. List some of the old methods of food preservation followed at home Giving examples and their viability in present times.

Ans. Some of the old methods of food preservation followed at home are as follows :

a) Sun drying
b) Pickling method
c) Salting method
d) Sugar method

As the women are mostly working so many of these methods have become obsolete. They are mostly dependent on preserved food.

## 4. Give a brief account of development of food preservation to its present status.

Food preservation are required to preserve food in edible and safe form. Methods by which food is preserved from spoiling after harvesting or slaughtering date back to prehistoric times. The oldest methods were sun drying, controlled fermentation, salting/pickling, candying, roasting, smoking, baking and using spices as preservatives. These tried and tested techniques are still used although, with the advent of industrial revolution, new methods have been developed. Food processing incorporates and unifies the general characteristics of different classes of foods and principles of food science, chemistry, food microbiology nutrition, sensory analysis and statistics including good manufacturing practices as per regulations. Many food processing operations are designed to extend the shelf life of the food products. The concepts associated with food processing are reducing/eliminating microbial activity and other factors that influence food spoilage.

## 5. As a prospective food technologist what knowledge and skills does the industry require you to have?

**Ans .:** As a prospective food technologist following Knowledge and Skills needed for Food Processing and Technology

- Seasonal availability of food stuffs
- Nature and properties of food
- Nutritional content and its analysis
- Cost of food stuff
- Influence of chemical pesticides, time, moisture, temperature and additives
- Knowledge of Information Technology for contemporary food production
- Knowledge of food preparation and cooking skills for large scale food production
- Labelling and packaging of marketable product
- Hazard Analysis and Critical Control point {HACCP}
- Designing, analysing and adapting a basic recipe
- Food handling skills
- Food production following hygiene and safety norms
- Handling tools and equipment accurately
- Innovations in product design and preparation according to consumer perceptions

6. What are the basis of classification of processed food?

Processed foods can be classified on the basis of extent and type of processing as follows:

Minimally processed foods: These are processed as little as possible in order to retain the quality of fresh foods.

Preserved foods: The methods of preservation used do not change the character of the product substantially e.g., frozen peas and frozen vegetables, dehydrated peas, dehydrated vegetables,
canned fruits and vegetables.

Manufactured foods: In such products, the original characteristics of the raw products are lost and some basic methods of preservation are used, often using various ingredients such as salt, sugar, oil or even chemical preservatives.

Formulated foods: These are products prepared by mixing and processing of individual ingredients to result in relatively shelfstable food products such as bread, biscuits, ice cream, cakes,Kulfi

Food derivatives: In industry, components of foods may be obtained from the raw product through purification, e.g., sugar from sugarcane or oil from oil seeds.

Medical foods: These are used in dietary management of diseases,for example, low sodium salt, lactose–free milk for persons with lactose intolerance.

## 7. Explain the following briefly:

• Why do we need to process and preserve food?

Ans. Foods are subject to physical, chemical and biological deterioration. Food deterioration is associated with spoilage, development of off-flavors, deterioration of textures, discoloration and loss of nutritional value in varying degrees, reducing aesthetic appeal and rendering it unfit/unsafe for consumption. A number of factors can lead to food deterioration or spoilage e.g. pests, infestation by insects, inappropriate temperatures used for processing and/or storage, excessive exposure to light and other radiations, oxygen, moisture. Food is also contaminated by microorganisms [bacteria, fungus and moulds) or chemicals such as pesticides. Food can also be spoiled due to degradation by naturally present enzymes. Therefore food processing and preservation are required to preserve food in edible and safe form.

What causes food spoilage and renders it unfit for human consumption?

Ans.: A number of factors can lead to food deterioration or spoilage e.g. pests, infestation by insects, inappropriate temperatures used for processing and/or storage, excessive exposure to light and other radiations, oxygen, moisture. Food is also contaminated by microorganisms [bacteria, fungus and moulds) or chemicals such as pesticides. Food can also be spoiled due to degradation by naturally present enzymes

Food spoilage is generally caused by bacteria. What are the four conditions that bacteria need to grow and multiply?

Ans. Factors influencing microbial growth are nutrient availability, moisture, pH, oxygen levels and the presence or absence of inhibiting substances e.g. antibiotics.

What is done in food processing to extend shelf life?

Ans.1..Application of heat,

2. Removal of water moisture,
3. Lowering of temperature during storage,
4. Reduction of pH,
5. Controlling the availability of oxygen.

As a food manufacturer it is a legal requirement to label the product. List the advice and information that should be given to the consumers on these labels

**Ans**. Ingredients used, Nutrient Vales, Cooking procedure, Warnings, Shelf Life, Net weight

How is the information on nutritional values given on the label useful?

Ans.  Actually it helps the consumer to utilise the product in a better manner.

• After the completion of 10+2 examination what is the professional scope in the field of Food Processing and Technology?

Professional scope in the field of Food Processing and Technology?

- Production Managers
- Project Implementation
- Marketing and Sales Personnel
- Sensory Evaluation
- Quality Assurance
- Research and Development, Product Development
- Project Financing
- Project Appraisal
- Teaching and Research
- Entrepreneurship Development
- Consultancy
- Technical Marketing of products