

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Home & Health Sciences)

Course: Basic of Food Sciences (7511)
Level: Postgraduate

Semester: Autumn, 2013
Credit: 3(2+1)

CONTENT LIST

Following items are included in the study pack.

- | | | |
|----|---|------------|
| 1. | Course Book | (Unit 1–9) |
| 2. | Theory Assignment | One |
| 2. | Practical Assignments | One |
| 3. | Assignment's Forms | Six |
| 4. | Schedule for submitting the assignments and tutorial meeting. | |

Note: If any one of the above items is missing from your study pack, please contact:

The Mailing Officer
Mailing Section
Services & Operational Unit
AIOU, H-8, Islamabad
Phone: 051-9057611-12

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Home and Health Sciences)

WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Basic of Food Sciences (7511)
Level: Postgraduate
Credit: 3(2+1)

Semester: Autumn, 2013
Total Marks: 100
Pass Marks: 40

ASSIGNMENT No. 1
(Units: 1–7)

- Q. 1 Write short notes on the following: **(16)**
- a) Factors responsible for protein denaturation
 - b) Food as a source of energy
 - c) Food as a Discipline
 - d) Differentiate between latent heat of fusion, vaporization and vapour pressure
- Q. 2 Compare the different groups of carbohydrate on basis of their chemistry and configuration. **(12)**
- Q. 3 Discuss the protein structure and confirmation in detail. What are functional roles of proteins in food? **(12)**
- Q. 4 Discuss the structure and composition of fats. Also explain the Geneva and systematic nomenclature of fatty acids. **(12)**
- Q. 5 Discuss basic structure and properties of water in detail. Why cooking takes long time in Murree and less time in Karachi. **(12)**
- Q. 6 Elaborate the composition of meat in detail. Also discuss the postmortem changes in meat. **(12)**

- Q. 7 Enlighten the different method used for in milk processing. (12)
- Q. 8 Write short notes on the following: (12)
- a) Difference between acidophilus milk and Kefir
 - b) Meat alternatives
 - c) Artificial Tenderizing

ASSIGNMENT No. 2

Total Marks: 100
Pass Marks: 40

Practical No. 1

How to prepare different solutions (10)

Practical No. 2

Measure the pH in a given sample (10)

Practical No. 3

Determination of moisture in wheat flour (10)

Practical No. 4

Determination of Total Ash (10)

Practical No. 5

Determination of total solids (Gravimetric Method) in milk (10)

Practical No. 6

Determination of protein by Kjeldahl Method (10)

Practical No. 7

Determination of Crude Fiber (10)

Practical No. 8

Determination of Fat Contents (10)

Practical No. 9

- a) Viva voce of the experiments carried out during all sessions (10)
- b) Submission of practical notebooks (10)

COURSE OUTLINE

UNIT-1: Introduction to Food Science

- Food Science as Discipline
- Basic constituents of Food
- Food as source of Energy
- Food and its Functions

UNIT-2: Carbohydrates in Food

- Monosaccharide
- Disaccharides
- Some Properties of Sugars
- Oligosaccharides
- Polysaccharides

Unit-3: Proteins in Food

- Amino Acids
- Protein Structure and Conformation Reactions and Properties of Proteins Enzymes

UNIT-4: Fat and Oil Products

- Structure and Composition of Fats
- Properties of Fats and Oils
- Composition of Dietary Fats and Oils
- Deterioration of Fats
- Shortening and Shortening Power of Various Fats and Oils
- Frying

UNIT-5: Water

- Chemistry of Water
- Specific Heat and Latent Heat of Water
- Water as a Dispersing Medium
- Water Activity
- Role of Water in Food Preservation and Shelf Life of Food

UNIT 6: Meat, Poultry, Fish, and Dried Beans

- Characteristics of Meat
- Muscle Contraction in Live Animals
- Poultry
- Fish
- Dried Beans and Peas (Legumes)

- Meat Alternatives

UNIT 7: Milk and Milk Products

- Composition of Milk
- Sanitation and Grading of Milk
- Flavour of Milk
- Milk Processing
- Types of Milk
- Cooking Applications
- Milk Substitutes and Imitation Milk Products

UNIT 8: Vegetables and Fruits

- Structure and Composition of Cell Tissue
- Pigments and Effects of Additional Substances
- Harvesting and Postharvest Changes
- Enzymatic Oxidative Browning
- Fruits: Unique Preparation and Cooking Principles
- Organically Grown Fruits and Vegetables
- Labelling of Vegetables and Fruits

UNIT 9: Food Emulsions and Foams

- Emulsions
- Natural Emulsifiers
- Synthetic Emulsifiers and Surfactants
- Foams, Foam stability, foam formation
- Foaming agents
- Effect of added Ingredients on foam stability

Recommended Books:

1. *Vickie A.Vaclavik & Elizabeth W.Christian (2008) Essentials of Food Science.3rd Edition.*
2. *Devendra Kumar Bhatt and Priyanka Tomar (2006) An Introduction to Food Science and Technology & Quality Management.*
3. *Food Sciences and Its Application Course Code-867, AIOU Compiled Material.*

=====