PH 591.1

Reg. No: | | | | | | |

St Aloysius College (Autonomous)
Mangaluru

Semester I – P.G. Examination – M.Sc. Food Science and Technology

January -2023

FOOD CHEMISTRY

Time: 3 Hours **Max. Marks: 70**

I. Answer any SIX of the following **(6×3=18)**

1. What is proximate analysis? Why it is important in food analysis.
2. Define water activity and how it relates to vapor pressure?
3. What is resistant starch? Make a note on the different types of resistant starch?
4. What is rancidity? How it affects the quality of lipids?
5. Define anti-nutritional compounds with an example.
6. What are dietary fibers? Mention their dietary significance.
7. How vitamins act as enzyme cofactors? Justify with examples.

II. Answer any FOUR of the following **(4×7=28)**

8. Discuss the physico chemical properties of water that makes it a solvent of life.
9. What is starch? Discuss on the functionalities (gelatinization & retrogradation) of starch.
10. Discuss the hydrogenation and winterization process of fats and oils with applications.
11. Describe the denaturation process of proteins and gel formation. How it impacts processing and storage of food proteins.
12. What is an enzyme catalyzed reaction? Explain the enzyme utilization in food industries.

III. Answer any TWO of the following **(2×12=24)**

13. What is browning in food? Elaborate on enzymatic and non-enzymatic browning and its applications in food.
14. Explain the sources and nutritional classification of proteins. Add on the digestibility coefficient, biological value, NPU and PER for food proteins.
15. Enumerate the chemical classification of lipids and describe the nutritional aspects of natural and modified lipids with dietary significance.

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Mangaluru

Semester I – P.G. Examination – M.Sc. Food Science and Technology

January -2023

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time: 3 Hours **Max. Marks: 70**

I. Answer any SIX of the following **(6×3=18)**

1. Write a short on movement of moisture during drying.
2. Write a short note on pasteurization.
3. Write the different types of blanching.
4. Write the processing methods of IMF
5. What are the desirable refrigerant properties?
6. Write a short note on ohmic heating application.
7. Write a short note on microwave processing mechanism

II. Answer any FOUR of the following **(4×7=28)**

8. Explain the types of Separation methods.
9. Explain the methods of thermal drying.
10. Elaborate on chilling equipment and application of cold storage on fresh and processed foods.
11. Elaborate on canning process and its microbial spoilage.
12. Write the classification of preservatives and explain its mode of action.

III. Answer any TWO of the following **(2×12=24)**

13. Discuss in detail the conventional preservation methods used for preservation of food.
14. Discuss in detail about Hurdle technology and its applications in food industry.
15. Discuss in detail about the phenomena of ice crystal formation in freezing and freezing curves.

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Semester I – P.G. Examination – M.Sc. Food Science and Technology

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FRUITS AND VEGETABLES PROCESSING TECHNOLOGY

Time: 3 Hours **Max. Marks: 70**

I. Answer any SIX of the following **(6×3=18)**

1. Write a short note on natural colours.
2. Define Chemical indices of fruit maturity.
3. What are the advantages and disadvantages of hypobaric storage?
4. What are Intermediate Moisture Foods (IMF).
5. How are fruit and vegetable fibres processed into value-added products?
6. Write the processing of fruit preserves and candy fruits with the help of flowchart.
7. Write a short note on tomato sauces and purees.

II. Answer any FOUR of the following **(4×7=28)**

8. Explain about Value added products such as tomato ketchup, pastes, chutneys and soup mixes.
9. Explain the Quality changes in frozen fruits and vegetables.
10. Explain briefly about squash, Ready to Serve (RTS), Ready to Drink (RTD) and cordials.
11. Write a note on hypobaric storage of Fruits and Vegetables.
12. Elaborate on Edible coating and its types.

III. Answer any TWO of the following **(2×12=24)**

13. Explain about the processing of jams, jellies and marmalades with the help of a flowchart and discuss on the problems associated with their processing.
14. Explain about the post-harvest handling and post-harvest treatments w.r.t fruits and vegetables.
15. Elaborate on Minimal Processing of Fruits and Vegetables.

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Semester I – P.G. Examination – M.Sc. Food Science and Technology

January -2023

PROCESSING OF MILK AND DAIRY PRODUCTS

Time: 3 Hours **Max. Marks: 70**

I. Answer any SIX of the following **(6×3=18)**

1. Write a note on nutritive value of milk.
2. Discuss on the types of milk.
3. Write a note on HTST pasteurization.
4. Explain the mechanism of Homogenization.
5. Give the classification of Cheese.
6. Write the formulation of general Ice-cream mix.
7. What is Butter spread? Mention its advantages.

II. Answer any FOUR of the following **(4×7=28)**

8. Discuss on the physico-chemical properties of milk
9. Explain the various quality control tests for milk.
10. Write in detail on membrane processing of milk.
11. Discuss in detail about processing of cheddar cheese.
12. Explain various standards for Milk and its products.

III. Answer any TWO of the following **(2×12=24)**

13. Elaborate on Aseptic Processing and Packaging of milk.
14. Explain in detail about technology for preparing Whole Milk Powder.
15. Write a detailed note on Milk adulteration and complications

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Semester I – P.G. Examination – M.Sc. Food Science and Technology

January -2023

WASTE MANAGEMENT AND ENVIRONMENTAL SUSTAINABILITY

Time: 3 Hours **Max. Marks: 70**

I. Answer any SIX of the following **(6×3=18)**

1. What are the types of waste generated from dairy industry?
2. What is the legislation related to environmental management?
3. Explain about the measurement of organic content in waste water.
4. What is Ion exchange treatment of waste water?
5. What are the gaseous waste treatment methods in industries?
6. Make a short note on type and characterization of waste generated from fruit and vegetable industry.
7. Explain the role of antioxidants from fruit peels.

II. Answer any FOUR of the following **(4×7=28)**

8. Explain regarding the types of waste generated from fish and poultry industry.
9. Discuss on the biological treatment of food industry waste.
10. Discuss on Effluent treatment plants in food industries.
11. Elaborate on the classification of waste based on the source.
12. Write a note on byproduct utilization from meat industry.

III. Answer any TWO of the following **(2×12=24)**

13. What is Zero Liquid Discharge? Explain about the Zero liquid Discharge with special reference to different challenges and technologies in it.
14. Explain in detail about the storage and disposal methods of solid waste.
15. Explain regarding the characterization and utilization of by-products from pulses and oil seeds.

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