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St Aloysius College (Autonomous)

Mangaluru

Semester I – P.G. Examination – M.Sc. Food Science and Technology
February - 2022

FOOD CHEMISTRY

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

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(6x3=18)

1. Define relative vapor pressure.
2. Write a note on importance of water and respective chemistry of ice formation.
3. Write a note on sorption isotherm.
4. What do you mean by Lipolysis?
5. Write a note on PER and its applications.
6. Super-secondary Structure of proteins.
7. Write a short note on BV and NPU.

II. Answer any FOUR of the following:

(4x7=28)

8. Explain in detail about oxidative rancidity and microbial rancidity.
9. Write in detail about browning phenomenon in food with advantages and disadvantages.
10. Explain denaturation of proteins.
11. What are the changes in respect to vitamins and minerals encountered during storage and processing?
12. Give an account on quantitative analysis of proteins.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain the physical and chemical properties of fats and oils.
14. Give a detailed account on carbohydrates:
 - a. Classification & sources.
 - b. Functional properties.
15. Elaborate on utilization of enzyme in food industries.

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

February - 2022

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. What are intermediate moisture foods and list any two advantages.
2. Write a note on factors affecting the frying process.
3. Write short note on physical factors affecting food spoilage.
4. Write short note on ohmic heating.
5. Write short note on refrigeration load.
6. What is rehydration and reconstitution of food.
7. Write a note on packaging material designed for processed food.

II. Answer any FOUR of the following:

(4x7=28)

8. Discuss on various types of heat treatment and its effects on foods.
9. Explain in detail about Pulse electric field.
10. Explain freezing curve and brief on any three freezing methods.
11. Discuss briefly on canning process and its defects.
12. Explain frying process and mechanism of oil uptake during frying.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain in detail about the refrigeration process and brief on the changes in foods during refrigeration
14. Discuss briefly on food irradiation and explain the interaction of radiation with food components.
15. Discuss briefly on conventional preservation methods with advantages and disadvantages.

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Mangaluru

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

February - 2022

FRUITS AND VEGETABLES PROCESSING TECHNOLOGY

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. What are Climatic fruits? Give some examples.
2. Define edible coating.
3. What is CA (Controlled atmosphere)?
4. Difference between Sherbet and Brine.
5. What are fruit preserves?
6. Define minimal processing.
7. Give two examples of Natural colorants.

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II. Answer any FOUR of the following:

(4x7=28)

8. Explain the biochemical changes that happen during ripening.
9. What is Hypobaric storage? Explain its advantages and disadvantages.
10. What are Intermediate Moisture Foods? Illustrate with an example.
11. Name some natural and synthetic syrups used in canning. How they are prepared?
12. Write a short note on mushroom and its value-added products.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain in detail about importance of cold chain maintenance during its transport and storage.
14. a) Explain about juice extraction and clarification methods.
b) Discuss on pre-storage treatment of fruits and vegetables.
15. a) Discuss on frozen fruits and vegetables.
b) Discuss on drying technology used for preservation of fruits and vegetables.

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

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PROCESSING OF MILK AND DAIRY PRODUCTS

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Define Fat destabilization.
2. What is overrun?
3. What is whey protein concentrate?
4. List out different types of cleaning and sanitizing agents used to maintain hygiene in dairy industry.
5. What is Aseptic packaging?
6. What are the criteria for grading?
7. What are milk proteins? Name them.

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II. Answer any FOUR of the following:

(4x7=28)

8. Discuss on the technology involved in processing of Whole milk powder. Comment on working principle of spray drying.
9. What is membrane processing technology? Explain about reverse osmosis w.r.t dairy industries.
10. Write a detailed note on the composition and nutritive value of milk and also comment on the factors effecting composition.
11. Explain about synthetic milk and its effects on the health of humans.
12. Write a note on infant's milk powder and sterilized cream.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain about Dairy industry in India with special reference to
 - a) Scope, strengths in Dairy Industry
 - b) Current status of Dairy Industry in India.
14. Discuss cheese under following heads:
 - a) Types of cheese and their manufacture.
 - b) Defects in cheese and their control.
15. Compare the technology in processing of milk through Pasteurization and UHT process.

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WASTE MANAGEMENT AND ENVIRONMENTAL SUSTAINABILITY

Time: 3 hrs.

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Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Write a short note on waste and its management.
2. Enumerate on the types of waste generated from meat and poultry industry.
3. Explain about incineration as a method of treatment for solid waste.
4. Write a note on NGT and CPCB and its role in environmental management.
5. Write a short note on ion exchange treatment.
6. Write a note on utilization of waste to make pectin.
7. Write a note on utilization of by-products from cereals & pulses processing industry.

II. Answer any FOUR of the following:

(4x7=28)

8. Discuss in details about types of waste generated and characterization of wastes from sugar industry.
9. Explain in detail about utilization of waste to produce biomolecules and enzymes from food processing industries.
10. Discuss in detail about Membrane Bioreactor Technology (MBR) for Waste water treatment.
11. Discuss on measurement of organic matter in waste water treatment.
12. Discuss in details about Recycling of waste from food industry.

III. Answer any TWO of the following:

(2 x12=24)

13. Provide the detailed note on types of waste generated and characterization of wastes from
 - a. fruits, vegetables processing industry
 - b. beverage industry.
14. Discuss in detail about biological and chemical unit operation in waste water treatment.
15. Explain the process of utilizing wastes to make value added products such as food colourants, antioxidants from fruit peels.
