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St Aloysius College (Autonomous)

Mangaluru

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

November - 2019

FOOD MICROBIOLOGY

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Write short notes on fluorescent antibody.
2. Write a note on microscope.
3. Microbiological enumeration of food sample.
4. Write a note on PCR.
5. What is Chemical Intoxication?
6. Write in brief about survival and growth conditions of coliforms.
7. Indicator Microorganisms.

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II. Answer any FOUR of the following:

(4x7=28)

8. Explain rapid methods for detection of microorganisms.
9. Discuss the principles of HACCP and its applications.
10. Discuss about different sources of microorganism in foods.
11. Explain phenotypic methods for identification of microorganism.
12. Explain the historical development in Microbiology.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain bacterial food borne infections? Discuss typhoid as an example.
14. Explain the microbial spoilage of fish and meat products.
15. What is ELISA? Discuss its different types.

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St Aloysius College (Autonomous)

Mangaluru

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

November - 2019

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Write the various factors affecting food spoilage.
2. Write a short note on various heat processing techniques.
3. Write a short note on food frying.
4. Differentiate between Quick and slow freezing.
5. Define a) thermal death curve?
b) z-value
c) f-value
6. Write a note on IMF? Mention any two advantages of IMF?
7. How food is processed using ohmic heating? Explain the principle.

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II. Answer any FOUR of the following:

(4x7=28)

8. Explain different methods of concentration of liquid products.
9. Discuss on types, functions and permissible limits of food additives.
10. Explain principle and stability of emulsification in food processing.
11. Explain the class I and Class II preservatives and its effect in foods.
12. Explain the preservation methods used in household.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain in detail the principle and food applications of High pressure processing.
14. Explain drying curve with labelled sketch and discuss on any three advanced dryers and its purpose in food materials.
15. Discuss in detail about canning process and its application in food preservation.

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

November - 2019

FOOD CHEMISTRY

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Define hydrolysis of lipids. What is texturised proteins?
2. What is food fortification?
3. Briefly describe classification of carbohydrates.
4. Write a short note on fat substitute.
5. Write a short note on dietary fibers.
6. Write a note on food colorants.
7. Define Protein efficiency ratio (PER) and Biological value (BV).

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II. Answer any FOUR of the following:

(4x7=28)

8. Discuss on the properties of enzymes.
9. Write short notes on water activity, moisture sorption isotherm, molecular mobility and food stability.
10. Discuss on the Browning reaction in food and give their applications.
11. Discuss on functional properties of starch.
12. Describe the physical properties of Lipids.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain in detail proteins structure.
14. Discuss on macro minerals and their Bioavailability.
15. Explain in detail rancidity and factors affecting rancidity.

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St Aloysius College (Autonomous)

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

November - 2019

TECHNOLOGY OF MILK AND MILK PRODUCTS

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

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(6x3=18)

1. Write a note on composition of milk.
2. Give the importance of membrane in processing of milk.
3. Draw the labelled structure of caseine molecules.
4. Write the scope and opportunities in Dairy Industry.
5. Write a short note on UHT processing.
6. Homogenization.
7. What is synthetic milk?

II. Answer any FOUR of the following:

(4x7=28)

8. Explain technology in processing of whey protein concentrate and Lactose powder.
9. Explain the standards and regulations on milk and their products.
10. What is plate Heat exchanger? Discuss the principle of heat exchange.
11. Utilization of byproducts of dairy industry.
12. Explain physico-chemical property of milk.

III. Answer any TWO of the following:

(2 x12=24)

13. Discuss on hygiene and sanitation system in Dairy Industry.
14. Discuss the present scenario of Dairy Industries in India.
15. Explain the technology used in processing of milk powder and discuss with reference to dryers.

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**Semester I – P.G. Examination – M.Sc. Food Science and Technology
November - 2018**

FOOD MICROBIOLOGY

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. Robert Koch and Louis Pasteur.
2. Briefly mention the classification of microorganisms.
3. Microbiological enumeration of food sample.
4. Differential media and enriched media.
5. What is chemical intoxication?
6. PCR
7. ELISA

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II Answer any FOUR of the following:

(4x7=28)

8. Explain rapid methods for detection of microorganisms.
9. Explain the pathogenesis and clinical features of infection caused by salmonella.
10. Factors affecting the growth of microorganism.
11. Describe the role of indicator microorganisms for monitoring the microbial quality of milk.
12. Explain the historical development in microbiology.

III Answer any TWO of the following:

(2 x12=24)

13. Explain in detail on bacterial food borne diseases, causative organism and symptoms.
14. Explain the spoilage micro flora of milk, fish and meat and their products.
15. Describe the functions and regulations of HACCP.

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Semester I – P.G. Examination – M.Sc. Food Science and Technology
November - 2018

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following: **(6x3=18)**

1. Write the principles of refrigeration.
2. Difference between deep and shallow frying.
3. Write a short note on effect of a_w on microorganisms.
4. Explain the functions of food additives.
5. Define rate of dehydration.
6. Factors affecting freezing rate.
7. What are intermediate moisture foods?

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II Answer any FOUR of the following: **(4x7=28)**

8. Explain the types and uses of class I and class II chemical preservatives in foods.
9. What is drying curve? Explain the principle involved in drying of foods.
10. Define food spoilage. Explain the factors affecting food spoilage.
11. Explain on the factors affecting oil uptake during frying.
12. Explain different unit operations in canning of fruits.

III Answer any TWO of the following: **(2 x12=24)**

13. Explain the methods of freezing and write a note on freeze drying process.
14. Explain the method used in concentration of liquid food using evaporators. Add a note on changes of food during concentration.
15. Explain the applications of Hurdle technology in food processing.

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Semester I – P.G. Examination – M.Sc. Food Science and Technology
November - 2018
FOOD CHEMISTRY

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. List the characteristic of bonded water.
2. Explain the gel formation in protein.
3. Physical properties of carbohydrates.
4. What is resistant starch?
5. Comment on the stability of thiamin, riboflavin and niacin.
6. Fat substitutes.
7. Write a short note on sweeteners.

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II Answer any FOUR of the following:

(4x7=28)

8. Explain the implication of water activity in food preservation.
9. Discuss the browning reaction in foods.
10. Explain the functionality of starch in foods.
11. What are lipids? Explain the physical and chemical properties of lipids.
12. Explain the chemical and functional properties of food proteins.

III Answer any TWO of the following:

(2 x12=24)

13. Explain auto-oxidation, thermal decomposition and modification of fats and oils.
14. How is protein content in food determined? Elaborate on the determination of its quality.
15. Discuss on the source and properties of enzymes.

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**St Aloysius College (Autonomous)
Mangaluru**
Semester I – P.G. Examination – M.Sc. Food Science and Technology
November - 2018

TECHNOLOGY OF MILK AND MILK PRODUCTS

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. How many parts of 4% milk and 40% cream should be mixed to obtain milk of 5% fat?
(solve by Pearson square and equation method)
2. Define milk. Give the composition of cow and buffaloe milk.
3. Write a note on milk fat structure.
4. Whey protein concentrate
5. What are the criteria for grading of milk?
6. What are the different types of sanitizing agents used in dairy industry.
7. What is lactose intolerance?

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II Answer any FOUR of the following:

(4x7=28)

8. Explain technology in processing of milk powder.
9. Explain standards and regulation on milk and their products.
10. Discuss on the different types of milk proteins.
11. Utilization of byproducts of dairy industry.
12. Explain physico-chemical properties of milk.

III Answer any TWO of the following:

(2 x12=24)

13. Explain in detail the technology of cheddar cheese production.
14. Write a note on:
 - a) Reception of milk
 - b) Aseptic packing
 - c) Classification of milk
15. What is pasteurization? Explain the process of pasteurization.

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**Semester I – P.G. Examination – M. Sc. Food Science and Technology
November - 2017**

FOOD MICROBIOLOGY

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. Difference between gram +ve and -ve bacteria.
2. Robert Kotch
3. Differentiable aerobic and anaerobic microorganisms.
4. *Clostridium botulinum* in food poisoning
5. PCR
6. Importance of listeria
7. Importance of poisonous algae.

II Answer any FOUR of the following:

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(4x7=28)

8. Indicator microorganisms and their importance.
9. Principles and regulations of HACCP.
10. Explain food infection and intoxication.
11. Explain bacterial growth curve with factors.
12. Briefly discuss on food spoilage in milk and meat products.

III Answer any TWO of the following:

(2 x12=24)

13. Explain Fungal food borne diseases, causative organisms and symptoms.
14. Explain about various cell organelles structures and their functions.
15. Discuss immunological and genotypic methods to detect microorganisms.

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**Semester I – P.G. Examination – M. Sc. Food Science and Technology
November - 2017**

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. Write the principles of refrigeration.
2. What is freezing curve?
3. Differentiate between deep and shallow frying. Give examples.
4. Give the mode of action of Benzoate in the preservation of food.
5. Role of water activity in food preservation.
6. TDT curve
7. Differentiate between dehydration and concentration.

II Answer any FOUR of the following:

(4x7=28)

8. What is canning? Explain different types of spoilage occurring in fruit canning.
9. Explain the methods of liquid food concentrates using ultra filtration.
10. Define food spoilage. Explain the factors affecting food spoilage.
11. Elaborate on the historical developments in food processing. Add a note on its importance.
12. List out the principles of emulsification and importance of HLB values.

III Answer any TWO of the following:

(2 x12=24)

13. Explain IM foods on the following heads:
i) Principles ii) Characteristics iii) Advantages iv) Problems
14. Discuss the principles and applications of Hurdle Technology in food processing.
15. Enumerate the principle and application of irradiation as a preservative. Add a note on the challenges faced for commercialization of irradiated food. List its advantages and disadvantages

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Semester I – P.G. Examination – M. Sc. Food Science and Technology
November - 2017

PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. Write the principles of refrigeration.
2. What is freezing curve?
3. Differentiate between deep and shallow frying. Give examples.
4. Give the mode of action of Benzoate in the preservation of food.
5. Role of water activity in food preservation.
6. TDT curve
7. Differentiate between dehydration and concentration.

II Answer any FOUR of the following:

(4x7=28)

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9. Explain the methods of liquid food concentrates using ultra filtration.
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(2 x12=24)

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 - i) Principles
 - ii) Characteristics
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St Aloysius College (Autonomous)
Mangaluru

Semester I – P.G. Examination – M.Sc. Food Science and Technology
November 2017

FOOD CHEMISTRY

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following: (6x3=18)

1. How are trans-fats formed?
2. How cellulose will be modified for various applications in food Industries?
3. Write about resistant starch with examples.
4. What are dietary fibers?
5. Explain on quaternary structure of proteins.
6. What are the enzymes involved in meat & dairy processing.
7. Explain the structure and interaction of hydrogen bond in water.

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II Answer any FOUR of the following: (4x7=28)

8. Explain in detail about gelatinization and retrogradation of starches.
9. What are enzymes? Explain the catalytic process. Explain the different factors affecting the enzyme activity.
10. Explain minerals and their bioavailability.
11. Define methods of measuring quality of protein: PDCAAS, NPU and PER.
12. Explain hydrogenation of oil.

III Answer any TWO of the following: (2 x12=24)

13. Discuss the role of water activity in food stability and in the shelf life of processed foods.
14. Explain browning reaction in food. Write in detail about enzymatic and non-enzymatic browning with respective applications in food.
15. Elaborate on Auto-oxidation of oils.

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Semester I – P.G. Examination – M. Sc. Food Science and Technology
November - 2017

TECHNOLOGY OF MILK AND MILK PRODUCTS

Time: 3 Hours

Max. Marks: 70

I Answer any SIX of the following:

(6x3=18)

1. Define milk. Name the types of milk.
2. Mention the strengths of dairy industry in India.
3. Write a note on synthetic milk.
4. Write note on nutritive value of cheese.
5. What are criterion followed for grading of milk?
6. Differentiate between cleansing and sanitizing agents used in dairy industry.
7. Differentiate between Shrikand and Channa.

II Answer any FOUR of the following:

(4x7=28)

8. Discuss in details about constituent and nutritive value of milk.
9. Discuss on UHT processing of milk in dairy industry.
10. Briefly discuss on processing on cheddar cheese.
11. Discuss on composition and processing of whey protein concentrate.
12. Explain the manufacturing process for butter.

III Answer any TWO of the following:

(2 x12=24)

13. Discuss in details pasteurization process for milk.
14. Discuss in detail application of membrane processing in dairy industry.
15. What are the by-products form dairy industry? Discuss about their utilization.
