LS2IPHC550

Reg. No. | | | | | | | | | |

St Aloysius (Deemed to be University)
Mangaluru
Semester II – P.G. Examination –M.Sc. Food Science and Technology
April - 2025
Food Process Engineering and Instrumentation

Time: 2 ½ hrs. Max Marks: 60

Note: Draw neat labeled diagrams/schematic sketches/structures wherever necessary.

I. Write short notes on any FIVE of the following. (5x3=15)

1. List the different types of boilers used in food processing.
2. Write a note on SS grade used in food industries.
3. Write a note on thermal processing of foods.
4. Explain the concept of corrosion resistance in materials used for food plant construction.
5. Write a note on GC.
6. Write a note on surface tension.
7. List the different types of HPLC columns, Provide examples of each.
8. Write a note on freezing and thawing.

II. Write explanatory notes on any FIVE of the following: (5x5=25)

9. Discuss the mechanisms of Heat transfer in detail.
10. What is evaporation? Discuss the importance of evaporation in food industry.
11. Discuss the importance of enzyme immobilization in industrial applications, including food processing and pharmaceuticals.
12. Convert 7500g into pounds, using conversion factors.
13. A bike is moving at a speed of 77Km/h, using conversion factors convert the units Km/h into m/s.
14. Discuss the importance of viscosity in fluid flow and its applications in food industries.
15. What are derived units? Explain with suitable examples.
16. Discuss electrical properties of food materials with examples.

III. Answer any TWO of the following: (2 x10=20)

17. What is unit operation? Discuss any four unit operations in food industries.
18. Discuss the thermal properties of a food material with suitable examples.
19. What is a transport phenomenon? Discuss its importance in food engineering.
20. Analyze the performance of an electronic nose system in detecting the spoilage of food products. Explain the considerations for sensor selection, data analysis and system calibration.

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Mangaluru

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

April - 2025

Processing Technology of Cereals, Pulses and Oil Seeds

Time: 2 ½ hrs. **Max Marks: 60**

Note: Draw neat labeled diagrams/schematic sketches/structures wherever necessary.

I. Write short notes on any FIVE of the following. **(5x3=15)**

1. List the applications of vital wheat gluten.
2. Mention the difference between all-purpose flour and bread flour.
3. Define the term "miso" in the context of fermented foods.
4. Define the term "rice bran" in the context of rice milling byproducts.
5. Discuss the global production of pulses and legumes. List three major pulses and legumes commonly grown in India.
6. Discuss the role of pulses and legumes in plant-based protein alternatives.
7. Write a short note on degumming of oils.
8. Identify the key steps involved in the bread-making process and provide a sequential order.

II. Write explanatory notes on any FIVE of the following: **(5x5=25)**

9. Discuss the nutritional composition of barley. What makes barley a nutritious grain choice?
10. Elaborate on the steps involved in the manufacturing of pulse protein concentrates.
11. Explain the process of post-harvest handling of oilseeds.
12. Elaborate on nutritional food mixes from oilseeds.
13. Discuss the role of leavening agents in bakery products.
14. Write a note on processing ragi.
15. Discuss the production of low-cost protein food development from pulses
16. Discuss the challenges and solutions in storing oils to prevent contamination. How can proper handling and packaging practices reduce the risk of contamination?

III. Answer any TWO of the following: **(2 x10=20)**

17. Explain the steps in the preparation of cakes.
18. Elaborate on rice milling operation.
19. Compare and contrast dry milling and wet milling of pulses.
20. Compare and contrast the processing methods for oil extraction from oilseeds (e.g., cold-pressing, solvent extraction). What are the advantages and disadvantages of each method?

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St Aloysius (Deemed to be University)

Mangaluru

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

April - 2025

Spices and Plantation Crops Technology

Time: 2 ½ hrs. Max Marks: 60

Note: Draw neat labeled diagrams/schematic sketches/structures wherever necessary.

I. Write short notes on any FIVE of the following. (5x3=15)

1. List the steps involved in the processing of black pepper.
2. Write the major processing steps of cashew nut.
3. Determine the common adulterants in coffee.
4. Give the standard specifications for turmeric powder.
5. Which are the major cocoa-producing states in India?
6. What are the health benefits of consuming chocolates?
7. Write in short quality evaluation in tea.
8. Write in short the major steps in caffeine extraction.

II. Write explanatory notes on any FIVE of the following: (5x5=25)

9. Explain the different types of coffee.
10. Explain the steps involved in chocolate processing?
11. Describe the production process of cocoa powder, cocoa liquor, and cocoa butter.
12. Explain the processing of sugarcane and its value-added products.
13. Describe the extraction of essential oil by water- steam distillation method.
14. With a neat flowchart explain the manufacturing of white tea.
15. Write a note on soluble tea and instant tea and their manufacturing.
16. Explain the processing of cardamom.

III. Answer any TWO of the following: (2 x10=20)

17. Explain the Extraction and Processing of Oleoresins from spices, their applications, and economic significance.
18. Elaborate on the processing of instant coffee with a flowchart.
19. Explain the processing steps of coconut and its value-added products.
20. Discuss the importance of plantation crops grown in India and their role.

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Mangaluru
Semester II – P.G. Examination – M.Sc. Food Science and Technology
April - 2025
Research Methodology and Ethics

Time: 2 ½ hrs. **Max Marks: 60**

Note: Draw neat labeled diagrams/schematic sketches/structures wherever necessary.

I. Write short notes on any FIVE of the following. (5x3=15)

1. Why is it important to identify research gaps in a literature review?
2. Define the range of a dataset and explain how it is calculated.
3. Differentiate between grouped and ungrouped frequency distribution.
4. Define sampling procedure.
5. Give an example where correlation and regression is useful.
6. What is T-test and how is it interpreted?
7. What is an impact factor, and why is it important for academic journals?
8. What are the different types of research?

II. Write explanatory notes on any FIVE of the following: (5x5=25)

9. Explain the importance of sampling in research.
10. Given a scenario where a researcher wants to test whether a sample mean is different from a known population mean, explain how they would conduct a hypothesis test for the population mean.
11. Discuss the importance of the literature review in both scientific reports and theses. How is it structured?
12. What are the key responsibilities of ethics committees when reviewing research proposals? How do they ensure the ethical integrity of research?
13. Discuss the criteria for selecting a good research problem.
14. Discuss the importance of diagrams and graphs
15. Explain about standard deviation, Coefficient of Variation and Hypothesis.
16. Discuss the different types of intellectual property rights that are relevant to research (e.g., patents, copyrights, trademarks).

III. Answer any TWO of the following: (2 x10=20)

17. What are the essential constituents of a literature review? Explain how to write an effective literature review.
18. Discuss in detail the various methods of collecting primary and secondary data.
19. A researcher collected data on household incomes in a city. Calculate the mean, median, and mode for the data provided: 30,000, 35,000, 40,000, 50,000, 100,000, 200,000
20. Explain in detail the ethical and legal consequences of plagiarism in research and publication. Provide real-world examples.

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