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**St Aloysius College (Autonomous)
Mangaluru**

**Semester IV – P.G. Examination – M.Sc. Food Science and Technology
April - 2025**

MEAT, FISH, AND POULTRY PROCESSING TECHNOLOGY

Time: 3 hrs.

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Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Comment on the different types of muscles.
2. Write the steps involved in the slaughtering of cattle.
3. Identify the primary purpose of stunning in abattoir operations.
4. Name two types of changes that occur in meat proteins during cooking.
5. What is the composition and nutritive value of meat?
6. Write a note on meat analogues.
7. What is fish surimi?

II. Answer any FOUR of the following:

(4x7=28)

8. Discuss on physico-chemical properties of meat.
9. Discuss meat microbiology and safety.
10. Discuss on novel methods of meat processing.
11. Draw the structure of the egg and give its nutritional composition.
12. Explain post mortem changes in fish muscle.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain in detail the conversion of muscle into meat.
14. Explain the byproduct utilization of fish.
15. Discuss the storage and preservation of meat.

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**Semester IV – P.G. Examination – M.Sc. Food Science and Technology
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FOOD PACKAGING

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

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(6x3=18)

1. Define food packaging.
2. What are the packaging requirements for horticultural products? Name two factors that packaging must protect these products from.
3. Discuss the factors that influence the selection of gas composition and packaging conditions in MAP.
4. What are edible films and coatings? Give example.
5. What are the primary raw materials used in the production of plastics for food packaging.
6. Short note on Testing of plastics.
7. Write in short about sustainable food packaging.

II. Answer any FOUR of the following:

(4x7=28)

8. Compare and contrast primary and secondary packaging, highlighting their respective functions.
9. Discuss on the packaging requirements of frozen and microwaveable foods. Explain the challenges in package of these food.
10. Write the sources of toxic materials and mechanism of their migration.
11. Explain in detail the designing of packaging materials.
12. Explain the blow and blow and press and blow process of glass manufacturing.

III. Answer any TWO of the following:

(2 x12=24)

13. Elaborate on the steps involved in the manufacturing of tinfoil and Tin free steel (TFS) with a flow chart?
14. What is Aseptic packaging? Explain the sterilization of packaging materials and food contact surfaces.
15. Discuss the processing of paper; add a note on the type of paper products.

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FOOD BIOTECHNOLOGY

Time: 3 hrs.

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Max Marks: 70

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

1. What are the key features of a photo bioreactor?
2. Describe the basic principles of fermentation.
3. Define genetic engineering and its significance in modern biotechnology.
4. Write a note on fed batch fermentation.
5. Describe the fermentation process involved in the production of soy sauce.
6. Comment on the significance of addressing the β -glucan problem in brewing.
7. List three primary techniques used in downstream processing.

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

8. Discuss on the classification of distilled & non-distilled beverages.
9. Analyze the nutritional benefits of traditional Indian fermented foods compared to their non-fermented counterparts.
10. Analyze the differences between vodka and rum production processes. Discuss the fermentation and distillation methods involved in each.
11. Critically evaluate the effectiveness of the GMO Act 2004 in balancing the interests of biotechnology companies, consumers, and environmental conservation.
12. Comment on media ingredients and formulation used in fermentation industry.

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

13. Debate the pros and cons of implementing mandatory labelling laws for genetically modified foods. Consider the economic, social and ethical aspects of mandatory labelling requirements.
14. Investigate the factors influencing the selection of sterilization methods for fermenters and ancillary equipment in industrial-scale fermentations.
15. Compare and contrast different filtration methods used in downstream processing. Highlight the principles and applications of MF, NF, UF and RO.

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

April - 2025

FOOD SAFETY AND QUALITY CONTROL

Time: 3 hrs.

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Max Marks: 70

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(6x3=18)

I. Answer any SIX of the following:

1. Differentiate between physical, chemical and microbial hazards in food.
2. Write a short note on the role of FSSAI in ensuring food safety.
3. Define food adulteration and briefly explain its significance in public health.
4. Identify and briefly explain three basic principles of Good Hygienic Practices that are applicable in food handling and processing.
5. Discuss the role of employee training in maintaining hygiene standards in food production facilities.
6. List the important principles of total quality management.
7. What is the primary objective of the IPM (Integrated Pest Management), and how does it contribute to ensuring the safety and quality of food products on a global scale?

II. Answer any FOUR of the following:

(4x7=28)

8. Discuss on the importance of traceability in ensuring food safety.
9. Discuss the significance of cleaning and sanitation schedules in food establishments. Explain how cleaning schedules are developed based on factors such as equipment usage, production schedules, and sanitation requirements.
10. Classify pest in the context of food safety. Provide examples of common pests found in food processing and storage facilities. Additionally, outline the potential risks associated with pest infestations in these environments.
11. Describe BIS (Bureau of Indian Standards) in detail.
12. Explain the SOPs process and their significance in the food industry.

III. Answer any TWO of the following:

(2 x12=24)

13. Define food labeling. Discuss the elements of food labels. Explain mandatory and optional nutrients in food labels.
14. Examine the challenges and opportunities in the global implementation of GAP. Discuss the cultural, economic, and regulatory factors that organizations may face when adopting GAP internationally. Elaborate on ISO 14000 and ISO22000 in detail.
15. What is HACCP? Explain the seven principles of HACCP with suitable example. Discuss any challenges or limitations associated with implementing and maintain HACCP in food safety system.