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DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – DECEMBER 2024

Semester: VI

357FP62 FOOD PRESERVATION

Time: 3:00 Hours

Max. Marks: 100

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) Explain the concept of food preservation and the role of high temperature in ensuring food safety and extending its shelf life. **(5 Marks)**
b) Discuss the principles of heat preservation, focusing on the effect of heat on microorganisms and the destruction of pathogens. **(7 Marks)**
c) Compare and contrast pasteurization and sterilization as methods of heat preservation, including their definitions, applications, and impacts on food quality. **(8 Marks)**
2. a) Explain the key factors that affect the process of heat preservation in food. Discuss how temperature, time, food composition, and packaging influence the effectiveness of heat-based preservation methods. **(10 Marks)**
b) Define sterilization in the context of food preservation and explain its importance. Discuss the different types of sterilization methods commonly used in the food industry, providing examples where appropriate. **(10 Marks)**
3. a) What is freezing, and why is it considered an effective method of food preservation? **(10 Marks)**
b) Explain the principles of freezing in food preservation. **(10 Marks)**
4. a) Explain the role of antibiotics in food preservation, providing two examples. **(10 Marks)**
b) Discuss how mold inhibitors prevent food spoilage, mentioning three commonly used

inhibitors. **(10 Marks)**

5. a) Explain the principles of microwave heating and its applications in food processing. How do microwaves interact with food to produce heat, and what benefits does this provide in food preservation? **(10 Marks)**
- b) Discuss the principles of preserving semi-moist foods. How does controlling water activity and using humectants contribute to shelf stability and quality retention? **(10 Marks)**
6. a) Discuss the advantages and disadvantages of the canning process for food preservation. **(10 Marks)**
- b) Compare and contrast the types of cans used in food preservation, highlighting their composition, advantages, and disadvantages. **(10 Marks)**
7. a) Describe the advantages and limitations of using microwave heating for food processing. Discuss how microwaves impact the texture and quality of foods. **(5 Marks)**
- b) Examine the role of microwave heating in food drying and dehydration. How does it improve the quality and efficiency of drying processes compared to conventional methods?
(10 Marks)
- c) Analyze the preservation methods for semi-moist foods and explain how the combination of water activity control, humectants, and preservatives helps to extend shelf life and improve food quality. **(5 Marks)**