

Chattogram Veterinary and Animal Sciences University  
MS in Food Processing and Engineering  
July-December Semester Final Examination, 2022  
**Subject Code & Title: NFF 502, Nutraceuticals and Functional Foods**  
Total marks: 40      Time: 2 hours

**Answer any four (4) questions. Figures in the right margin indicate full marks.**

1. (a) Show a comparative table between nutraceuticals and functional foods along with their impact on human health. **3.0**
- (b) Classify nutraceutical factors based on mechanism of action. **2.0**
- (c) With a schematic illustration briefly explain the bioactive extraction process of a multistage supercritical fluid extraction system. **5.0**
2. (a) Elucidate the data required to design and develop functional foods. **5.0**
- (b) Water and carbon-di-oxide are favorable fluid for subcritical or supercritical condition. Justify your answer. **3.0**
- (c) Mention the advantages of vacuum distillation system. **2.0**
3. (a) Can nisin and pediocin be applied in food processing and preservation? If yes, describe the reason. **4.0**
- (b) Briefly explain the effects of pH on different food components? **6.0**
4. (a) Enumerate the mode of action of pH on microbial cell. **3.0**
- (b) How nitrites interact with food components? **2.0**
- (c) What is the application of nitrites in food preservation? Point out the antimicrobial aspect of nitrites with their mode of action. **5.0**
5. (a) Define probiotics. Highlight the criteria of probiotics. **2.0**
- (b) Describe three health aspect of eating yoghurt. **6.0**
- (c) List the major components of olive oil. Why olive oil is considered nutraceuticals? **2.0**

Chattogram Veterinary and Animal Sciences University  
MS in Food Processing and Engineering  
July-December Semester Final Examination, 2022  
**Subject Code & Title: ATA 502, Advanced Technology of Animal Products**  
Total marks: 40      Time: 2 hours

**Answer any four (4) questions. Figures in the right margin indicate full marks.**

1. a. Point out the symptoms associated with the spoilage of meat. 2  
b. Elucidate the sources of contamination in a meat processing plant. 6  
c. Differentiate between mechanical, chemical and enzymatic tenderization process. 2
  
2. a. Draw a flow chart of beef carcass slaughtering process and explain elaborately. 6  
b. What types of sanitations should be considered during sausage manufacturing? 4
  
3. a. Define fish meal. How fish meal is prepared? 4  
b. Write short notes on- 3×2=6
  - i. Chilling
  - ii. Freezing
  - iii. Glazing
  
4. a. Illustrate and identify the parts of an egg. 3  
b. Briefly describe the grading system of an egg before marketing. 3  
c. Enumerate any four quality deterioration parameters of egg. 4
  
5. a. What do you mean by standardization and sterilization of milk? 2  
b. Show the differences between butter and cheese preparation with the process flow chart. 4  
c. What types of physical losses occur in drying/ dehydration and canning process of fish? Briefly explain. 4

**Chattogram Veterinary and Animal Sciences University**  
**MS in Food Processing and Engineering Final Examination**  
**July- December Semester 2022**  
**Course Title: Risk Assessment and International Food Legislations**  
**Course Code: RFL-502**  
**Total Marks: 40      Time: 2 hours**

**Answer any four (4) questions. Figures in the right margin indicate full marks.**

1. a. What is risk assessment in food industry? Briefly describe the different types of risk assessment. **5.0**  
b. How is a risk assessment carried out? How a risk assessment chart is made? **5.0**
  
2. a. Why are food regulations important in food production? **5.0**  
b. How many fundamental requirements of BRC? **5.0**
  
3. a. What is the difference between PRP and GMP? How do you implement GMP in food industry? **5.0**  
b. What are the roles and responsibilities under HACCP? **5.0**
  
4. a. What is Deming cycle explain briefly? **5.0**  
b. What is the action of UNICEF for food system transformation? **5.0**
  
5. a. Write short notes on: (Any two) **5.0**
  - i. Food adulteration
  - ii. Halal certification
  - iii. Misbranding of foods  
b. Briefly describe the role & activities conducted by CAC **5.0**

**Chattogram Veterinary and Animal Sciences University**  
**MS in Food Processing and Engineering Final Examination**  
**July- December Semester 2022**

**Course Title: Fermentation and Food Biotechnology**

**Course Code: FFB-502**

**Total Marks: 40      Time: 2 hours**

**Answer any four (4) questions. Figures in the right margin indicate full marks.**

1. a. Categorize foods according to modern biotechnology with example. **5.0**  
b. Describe different types of fermentation with appropriate reactions. **5.0**
  
2. a. Briefly describe the sensory qualities of food. **5.0**  
b. Narrate submerged fermentation with example. **5.0**
  
3. a. How is single cell protein produced? **5.0**  
b. Give an over view of baker's yeast production. **5.0**
  
4. a. Illustrate the separation and purification process of nucleic acids. **5.0**  
b. Briefly describe the replication of DNA. **5.0**
  
5. a. What's the molecular mechanism undergoing Agrobacterium mediated transformation? **5.0**  
b. How can biotechnology improve the nutritional quality of food? **5.0**

Chattogram Veterinary and Animal Sciences University  
Department of Food Processing and Engineering  
MS in Food Processing and Engineering Final Examination  
July-December Semester Final Examination, 2022  
**Subject Code & Title: NFT-502, Novel Food Processing Techniques**

Total Marks = 40

Time = 2 hours

(Figures in the right margin indicate full marks. Answer any **Four** questions, the  
Split answer is not allowed)

1. a) Define organic food and organic farming. Briefly describe the minimum requirements of organic farming. 5  
b) Enumerate the encapsulation techniques with a flow diagram. Illustrate the coacervation and molecular inclusion encapsulation process. 5
2. a) Brief the rationale for using Edible Coating and Surface Treatments. Illustrate the release mechanism of flavor from encapsulated powder. 5  
b) Describe the principles of the High Pressure Processing (HPP) food preservation method. List out the key benefits of HPP methods. 5
3. a) Briefly describe the five major techniques that are usually used in surface preparation and coating techniques. 5  
b) Illustrate the mechanism of action of Pulse Electric Field (PEF) processing with a diagram. Mention some applications of PEF processing. 5
4. a) Define hybrid drying Technology. Write down the working mechanism and benefits of Microwave Vacuum Drying. 6  
b) Define Osmotic Dehydration. Enumerate in brief the factors affecting mass transfer during Osmotic Dehydration. 4
5. a) "Ultrasound as a Processing Aid"- discuss the statement. Explain the role of applying Osmotic Dehydration for preserving nutritive value of food. 5  
b) Define Osmotic Membrane Distillation (OMD). How Radio Frequency Electric Field chamber can be configured for food processing? 5

Chattogram Veterinary and Animal Sciences University  
Department of Food Processing and Engineering  
MS in Food Processing and Engineering Final Examination  
July-December Semester Final Examination, 2022  
**Subject Title: Advanced Unit Operations in Process and Food  
Engineering**

**Subject Code: AUP-502**

Total Marks = 40

Time = 2 hours

(Figures in the right margin indicate full marks. Answer any **Four** questions, the  
Split answer is not allowed)

1. a) Give an overview of an Engineering Process in unit operation. 4  
b) Briefly describe the following Pasteurization processes: 6
  - i) High temperature-short-time (HTST) pasteurization,
  - ii) Low-Temperature Long Time (LTLT) pasteurization,
  - iii) Ultra-High Temperature (UHT) Pasteurization.
  
2. a) Define the pump and list the components of a pumping system. 5  
Explain the operating principle of a centrifugal pump with an advantage.  
b) Show the graphical representation of different fluid flow in Food 5  
Processing. Discuss the concept of D-value and the concept of Z-  
value.
  
3. a) Mention the objectives of size reduction and equipment for size 4  
reduction.  
b) Enumerate in brief the following process: 2x3=6
  - i) Types of the different evaporation processes,
  - ii) Types of commercial evaporative crystallizers.
  
4. a) Define the following terms: i) Slurry, ii) Filtrate, iii) Filter 5  
Medium, iv) Filter cake, and v) Filter. Shortly describes the  
vacuum filtration process.  
b) Describe the applications of Refractometry in tabular form. 5
  
5. Write down the following terms (any four): 2.5x4=10
  - i) Principle of Refractometry,
  - ii) Principle of Flame photometry,
  - iii) Principle of Mass Spectroscopy,
  - iv) Various methods of sampling,
  - v) Principle of atomic absorption spectroscopy.