

Chittagong Veterinary and Animal Sciences University  
Faculty of Food Science and Technology  
BFST 2<sup>nd</sup> Year 2<sup>nd</sup> Semester Final Examination, 2014  
Subject: Food Microbiology (Theory)  
Course Code: FMB-202(T)

Full Marks: 70

Time: 3 hours

Answer any five questions from each section. Split answer is discouraged.

**Section-A**

- 1 a) Define food microbiology. 2  
b) List five groups of bacteria with examples that are important in food microbiology 5
2. a) Name different types of microbial fermentation of carbohydrate 2  
b) How do symbiotic and metabolic effects influence the growth of microorganism in food? 5
3. a) What are the needs to fitness of food? 3  
b) Write down the principles of food preservation along with example 4
4. a) Enumerate five common defects of can. 2  
b) Describe different methods of drying of food preservation. 5
5. a) What are the properties of an ideal antimicrobial preservative? 3  
b) Write down the objectives of market milk pasteurization. 2  
c) What are the common sources of contamination of milk? 2
6. a) Describe different methods used in preservation of meat. 5  
b) Write down the common types of spoilage of meat under anaerobic condition. 2

**Section B**

7. a) What are the natural barriers of eggs against microbial growth? 3  
b) Write down the factors that influence the kind and rate of spoilage of fish. 4
8. a) How does HACCP ensure food safety? -Describe 3  
b) Establish HACCP principles. 4
9. a) Mention six fermented food products. 4  
b) List four common bacterial food borne diseases along with their causal agents. 3
- 10 a) What is mycotoxin? Name three important mycotoxins. 3  
b) Differentiate food infections and from food intoxication. 4
- 11 a) Describe the following terms: 7  
I) Thermal death time II) D-value III) Pasteurization IV) Canning V) Metacryotic fluid
- 12 a) Define springer, simmering and smoking. 3  
b) Compare Staphylococcal and botulism toxins and the conditions of their production. 4



**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 2<sup>nd</sup> Year 2<sup>nd</sup> Semester Final Examination, 2014**  
**Subject: Cereal and Legume Technology (Theory)**  
**Course Code: CLT-202(T)**

**Full Marks: 70**

**Time: 3 hours**

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question **1 & 6** are compulsory. Use separate answer script for each section. Split answer is discouraged.)

**Section-A**

- 1 Define cereal. What are the primary basis for rice quality for cooking and processing behavior? 5
2. a) Briefly describe the quality characteristics of rice. 4  
b) Name the various tests employed for assessing cooking and processing quality of rice. Describe pasting characteristics and water uptake test. 6
3. a) Define parboiling. Describe the properties, test and quality control of parboiled rice. 5  
b) What do you mean by degree of milling of rice? Describe in brief the modern rice milling procedures. 5
4. a) Differentiate between tempering of rice, wheat and pulse. 4  
b) Indicate the nutrient specification for enriched rice. Write down the manufacturing process of artificial rice. 6
5. a) Give the diagram of wheal kernel and describe its anatomical structure. 4  
b) Explain the following terms: i) Hard wheat, ii) Durum wheat and iii) Soft wheat. How does extraction rate affect the efficiency of a flour milling system? 6

**Section-B**

6. Write down the chemical changes that occur in food grains during storage. 5
7. a) Indicate the utilization of various rural storage structures. 4  
b) Define maturation. Briefly describe the action of improver and various improving agents. 6
8. a) Discuss the following ready-to-eat cereal products: i) Flaked products, ii) Puffed products and iii) Shredded products. 6  
b) Illustrate the production trends of maize dry milled products of Bangladesh. 4
9. a) Give an overview of benefits of soymilk. 5  
b) Define malting and brewing. Write down the major steps of brewing in the manufacture of beer. 5
- 10 a) Write down the milling process of pulses. 5  
b) Define Birefringence and Retro-gradation. Mention the main uses of pulses in Bangladesh. 5



**Chittagong Veterinary and Animal Sciences University**  
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**BFST 2<sup>nd</sup> Year 2<sup>nd</sup> Semester Final Examination, 2014**  
**Subject: Baking and Confectionary Technology (Theory)**  
**Course Code: BCT-202(T)**

**Full Marks: 70**

**Time: 3 hours**

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question **1 & 6** are compulsory. Use separate answer script for each section. Split answer is discouraged.)

**Section-A**

- 1 Give short note on Bread staling and ropiness of bread. 5
2. a) Define baking, confectionary, shortening gas retention and proofing time. 5  
b) What is the main principle of baking? –Elaborately explain. 5
3. a) How air can be incorporated in air leavening baking process? -Describe this process. 4  
b) Give a brief description of pasta manufacturing process. 6
4. a) Write down the composition of cocoa solid and chocolate liquor. 3  
b) Show the manufacturing process of cocoa powder and chocolate with a schematic diagram with short description. 7
5. a) Narrate the principle of yeast leavening baking process. 4  
b) What are the causes of defects of bread and chocolate? 6

**Section-B**

6. With a net sketch discuss the reactions that may take place during baking process. 5
7. a) How baking ingredients works during baking? Give functions of five major baking ingredients. 5  
b) Write short notes on: (i) Conching and winnowing, (ii) Characteristics of sugar used for confectionary products. 5
8. a) Classify noodles and cookies. 3  
b) Describe the lists for flour baking. 7
9. a) Write down the functions of four major sweetening agents used for confectionary products. 6  
b) Is rice flour used for baking purpose? Highlight the merits and demerits of rice flour. 4
- 10 a) What is candy? Classify candy and identify the candy according to sugar stages. 5  
b) Enumerate the functions of wheat protein in baking and the criteria for bread flour. 5



**Chittagong Veterinary and Animal Sciences University**  
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**BFST 2<sup>nd</sup> Year 2<sup>nd</sup> Semester Final Examination, 2014**  
**Subject: Technology of Meat Products (Theory)**  
**Course Code: TMP-202 (T)**

**Full Marks: 70**

**Time: 3 hours**

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section where questions **1 and 5** are compulsory. Use separate answer script for each section. Split answer is discouraged).

**Section-A**

- |    |  |   |
|----|--|---|
| 1  | a) Define meat? Discuss the prospects and constraints of meat industry in Bangladesh.  | 4 |
|    | b) What is red meat? Briefly discuss the food value of meat.   | 4 |
|    | c) Show the microscopic structure of meat.   | 3 |
| 2. | a) What is food and food nutrient? Is meat a food or nutrient?   | 4 |
|    | b) What is meat quality? How will you do grading of meat?  | 4 |
|    | c) Categorize the processed meat products with example.  | 4 |
| 3. | a) What is meat tenderization? Briefly describe the physical and chemical process of artificial meat tenderization.                  | 4 |
|    | b) What is differentiation of meat? Write down the physical differentiation of meat from different animal species in a tabular form. | 4 |
|    | c) Differentiate food additives and food preservatives. Briefly describe the aerobic spoilage of meat.                               | 4 |
| 4. | a) What is the difference between meat science and meat technology?  | 4 |
|    | b) Discuss the key points to be inspected for grading of meat.   | 4 |
|    | c) Briefly discuss about the meat plant sanitation and safety.   | 4 |

**Section-B**

- |    |  |     |
|----|--|-----|
| 5. | a) Define dressing percentage and slaughter house by-products. List the edible and non-edible slaughter house by-products.                   | 4   |
|    | b) Write down the general guideline and abnormalities encountered during anti mortem inspection of meat animals.                             | 4   |
|    | c) Write down the uses of non-edible slaughter house by-products.  | 3   |
| 6. | a) Define packaging of meat. Briefly describe the Modified Atmosphere Packaging (MAP) of meat and meat products.                             | 4   |
|    | b) What are the deteriorative effects of microbial growth in meat and meat products?   | 4   |
|    | c) Briefly describe the sources of contamination of meat in meat plant.  | 4   |
| 7. | a) What is smoking of meat? How smoking preserve meat?   | 4   |
|    | b) Write down the different action of smoke compounds during meat smoking?   | 4   |
|    | c) List the judgment symbols and their meaning that are used to certify meat and meat animals during anti mortem and post mortem inspection. | 4   |
| 8. | Write short notes on (any three)   | 3×4 |
|    | a) Mechanical deboning   | 12  |
|    | b) Canning of meat   |     |
|    | c) PSE and DFD meat  |     |
|    | d) Defective acidification of meat   |     |
|    | e) HACCP   |     |



**Chittagong Veterinary and Animal Sciences University**  
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**BFST 2<sup>nd</sup> Year 2<sup>nd</sup> Semester Final Examination, 2014**  
**Subject: Food Plants Design, Layout and Management (Theory)**  
**Course Code: PDL-202(T)**

**Full Marks: 70**

**Time: 3 hours**

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question **1 & 6** are compulsory. Use separate answer script for each section. Split answer is discouraged.)

**Section-A**

- 1 Give the outline of an ideal food plant layout. 5
2. a) Define hygiene. Write what you know about site selection of a food plant. 5  
b) Differentiate between cleaning and disinfection. Enumerate the basic principles of sanitary design. 5
3. a) How would you assess cleaning operation? Classify material handling equipment and describe about bucket elevator. 6  
b) Determine the theoretical capacity of a screw conveyor when screw diameter is 0.05 m, shaft dia 0.03 m, pitch dia is 0.02 m, bulk density is 560 kg/m<sup>3</sup>, rpm 1000 and housing dia 0.06 m. 4
4. a) Define GMP. Briefly explain the regulations of order and safety. 5  
b) What are the rules that should be followed for equipment design and installation? 5
5. a) What are the types of impurities found in water purification? With figure describe coagulation and flocculation methods for water treatment. 6  
b) Draw, level and explain pressure sand filter. 4

**Section B**

6. Define BOD and COD. What are the key factors that influence water quality? 5
7. a) Illustrate the screening and sedimentation methods for removing suspended matters in water. 5  
b) Name the terminal disinfection methods and explain chemical disinfection method for water purification. 5
8. a) Define super chlorination. Describe Zeolite process for softening of water. 5  
b) Illustrate the methods for the ultimate disposal of sludges. 5
9. a) Construct Break even charts and show profit and loss. 4  
b) Consider a company selling 500,000 units at a price of tk 1.5 per unit where variable cost per unit is tk 1.00 and fixed cost is tk 150000. Construct a break even chart and indicate the profit. Also show what happens to profit when fixed cost becomes tk 250,000. 6
- 10 a) Explain the following terms: i) Company, ii) Time value of money and iii) personnel management. 4  
b) Differentiate between centralization and decentralization. Prepare an advertisement notice for recruitment of man power in your food industry. 6



**Chittagong Veterinary and Animal Sciences University**  
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**BFST 2<sup>nd</sup> year 2<sup>nd</sup> Semester Final Examination, 2014**  
**Subject: Nutritional Evaluation of Food Processing (Theory)**  
**Course Code: NFP-202**

**Full Marks: 70**

**Time: 3 hours**

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question 1 & 6 are compulsory. Use separate answer script for each section. Split answer is discouraged.)

**Section-A**

1.
  - a. What do you know about processed food? 2
  - b. Write down the development of modern food processing methods with examples. 3
2.
  - a. Discuss the changes occur in foods during refrigerated storage. 4
  - b. Discuss the effect of irradiation on foods. 4
  - c. Why most vegetables are scaled with hot water before preparation for freezing? 2
3.
  - a. What are bio-active compounds? 2
  - b. Discuss effects of cooking on carbohydrate and proteineous food materials. 5
  - c. Mention the properties of packaging materials. 3
4.
  - a. Discuss the effect of climate alterations on fruit ripening. 3
  - b. State down the significance of cooking. 3
  - c. Describe briefly gelatinization of starch. 4
5.
  - a. What is edible film? 2
  - b. Indicate the desirable and undesirable chemical changes during processing of foods. 8

**Section-B**

6.
  - a. Define High Pressure Processing (HPP) and Pulsed Electric Field (PEF)? 2
  - b. Illustrate the functioning methods of Pulsed Electric Field treatment. 3
7.
  - a. What type of changes found in food due to hereditary variation? 3
  - b. Write down the interaction between bakery products and packaging materials? 4
  - c. List the suggestions required to reduce the loss of nutrients in food. 3
8.
  - a. Briefly discuss the comparison of nutritional contents among fresh, frozen and canned fruits and vegetables. 5
  - b. What kind of degradation reaction happens in food throughout the storage time? 5
9.
  - a. How does commercial processing improve food superiority? 4
  - b. Which factors are liable for changes of nutrients at store room? 4
  - c. How do maturities of fruits and vegetables affect food quality? Give some examples. 2
10.
  - a. What is Modified Atmosphere Packaging (MAP)? 2
  - b. Why HPP is popular in modern food industry? 2
  - c. What are anti-nutrients? Give some examples of anti-nutrients. 2
  - d. How does processing affect the texture of food? 4



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**Section-A**

- |    |  |   |
|----|--|---|
| 1  | a) What is lipid? Discuss its classification.  | 3 |
|    | b) Discuss chlorination and degassing process during water treatment.  | 2 |
| 2. | a) What do you mean by softening of water?   | 2 |
|    | b) How do you regenerate cation and anion exchange resin?  | 3 |
|    | c) How is water demineralized? Describe boiler feed water treatment process.   | 5 |
| 3. | a) How can you prepare samples for low molecular weight carbohydrate?  | 4 |
|    | b) Discuss Munson and Walker method for determining the concentration of reducing sugar in a sample and mention its disadvantages. | 4 |
|    | c) How can you determine Maltose/Sucrose in a food sample by enzymatic method?   | 2 |
| 4. | a) Briefly discuss the chemical tests used for identification and determination of lipid in food sample.                           | 5 |
|    | b) What is oxidative and hydrolytic rancidity of fat or oil?   | 3 |
|    | c) Write down the importance of fat or oil in diet.  | 2 |
| 5. | a) What is vitamin? Discuss classification and properties of vitamin.  | 3 |
|    | b) Discuss briefly about structure, sources, deficiency, diseases and physiological function of vitamin A and E.                   | 7 |

**Section-B**

- |     |  |       |
|-----|--|-------|
| 6.  | a) Give the names of water and fat soluble vitamins.   | 1     |
|     | b) Write short notes on emulsion and lipid.  | 4     |
| 7.  | a) Mention the difference between Amylose and Amylopectin.   | 3     |
|     | b) Discuss different functions of carbohydrate in human body.  | 2     |
|     | c) Discuss the metabolic consequences of insulin deficiency.   | 3     |
|     | d) How is Glucose Tolerance Test (GTT) carried out?  | 2     |
| 8.  | a) What do you understand by starch gelatinization and retrogradation?                                 | 3     |
|     | b) Discuss the following: (i) Hydration (ii) Solvation (iii) Free water (iv) Bound water               | 4     |
|     | c) What is gel? Discuss different kinds of gel.  | 3     |
| 9.  | a) What are the results of blanching, canning, drying and freezing on vitamins during food processing? | 4     |
|     | b) Write down the macro and micro minerals in human body and mention their general function.           | 2     |
|     | c) Discuss briefly the sources and metabolic function of Calcium (Ca) and Iron (Fe) in human body.     | 4     |
| 10. | Write about the following purification methods of organic compounds:                                   | 4+3+3 |
|     | a) Fractional distillation   |       |
|     | b) Steam distillation  |       |
|     | c) Crystallization   |       |