

Chittagong Veterinary and Animal Sciences University

Faculty of Food Science and Technology

BFST 2nd Year 2nd Semester Final Examination, 2013

Subject: Food Microbiology (Theory)

Course Code: FCM- 202 (T)

Full Marks: 70

FMB

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any five (5) questions from each section. Use separate answer script for each section.)

Section: A

1. a) Differentiate intoxication from infection. 2
- b) Describe botulism with its causal agent, nature of toxins, type of toxins they produce, foods involved and conditions necessary for the disease to occur. How will you prevent botulism? 5
2. a) What is canning? Name the sequential steps of canning and describe the causes of spoilage of heated canned foods. 2
- b) Describe various types of spoilage of milk with their causes. 5
3. Define food borne disease outbreak and describe briefly the steps one should follow to investigate food borne disease outbreaks. 7
4. a) Name three (3) yeasts of industrial importance and three (3) genera of bacteria important in food microbiology. 5
- b) Define and describe a_w value and O-R potential. 2
5. a) Define food additives. Name at least six (6) chemical food preservatives with their maximum tolerance, organisms affected and foods preserved by them. 5
- b) Describe the bacteriology of water supply and define GMP. 2
6. a) Write down the causal agents of the following conditions: 4
 Bread mold, sulfide stink, yellow discoloration of meat, black rot of eggs, mustiness of eggs, and neck rot of bananas
- b) Define the following terms 3
 Z value, UHT, thermoturics, curing

Section B

7. List the intrinsic and extrinsic factors of food and describe how pH and biological structure of food influence microbial activities. 7
8. a) What are the important sources of contamination of meat? 4
- b) Write down the off flavors of egg with their causal agents. 3
9. Discuss briefly the contamination and preservation of cereal and cereal products. 7
10. a) State the conditions required for the outbreak of staphylococcal food poisoning. 3
- b) Write down the use of high temperature in food preservation. 4
11. a) What do you mean by food fermentation and SCP? 4
- b) Briefly describe the nutritive value and use of SCP. 3
12. a) Define bacterofugation and vacreation. 2
- b) What is mycotoxin? Name major groups of mycotoxins involved in food poisoning. Describe aflatoxin poisoning with the sources of the toxin. 5

Chittagong Veterinary and Animal Sciences University
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BFST 2nd Year 2nd Semester Final Examination, 2013
Subject: Food Chemistry (Theory)
Course Code: FCM- 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 no. **1** and **6** are compulsory. Use separate answer script for each section. Split answer is not allowed.)

SECTION: A

1. a) What is the role of water in biological system? 2
b) What are the uses of fats and oils? 3
2. a) What is Maillard reaction? Briefly discuss the chemistry of the Maillard reaction. 4
b) What are the physiological effects of the Maillard compounds? 3
c) What do you mean by protein factor, denatured protein and amino acid imbalance? 3
3. a) Discuss about the Kjeldahl method and dye binding method for determination of protein. 6
b) Describe the types of changes during processing of protein. 3
c) What do you mean by essential amino acids? 1
4. a) How can you prepare samples for monosaccharides and oligosaccharides? 4
b) Describe the Lane-Eynon method for determining the concentration of reducing sugar in a sample and give some disadvantages of this method. 4
c) How can you determine d-glucose/ d-fructose by enzymatic method? 2
5. a) Sketch the flow diagram of water treatment plant mentioning fire water, potable water and boiler feed water. 4
b) What do you mean by regeneration of cation and anion exchange resin? Describe the process of regeneration. 3
c) State the function of cation exchanger and anion exchanger in water treatment plant with chemical reaction. 3

SECTION: B

6. a) What do you mean by emulsion and gel? 2
b) What are trace elements? Why are they important for human health? 3
7. a) Write down the functions, sources and effects of deficiency of ascorbic acid. Discuss its losses during food processing. 6
b) Discuss the roles of water insoluble vitamins in human health. 4
8. a) What are major minerals? Briefly discuss their function and sources. Write down their deficiency disorders in human health. 7
b) What is polymorphism of fats? What are its implications? 3
9. a) Discuss the chemical properties used for identification of natural fats and oils. 7
b) What is crystallization? What is the importance of crystallization in purification of organic compounds? 3
10. a) What do you mean by distillation? What are the differences between distillation and fractional distillation? 4
b) Draw and discuss the operation procedure of Soxhlet extractor. 6

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2013
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 question no. **1** and **5** are compulsory. Use separate answer scripts for each section. Split answer is discouraged.)

SECTION: A

1. a) What is slaughtering of animals? Mention the name of different kinds of slaughtering method. 4
b) Write about the prospects of meat processing plant in Bangladesh. 4
c) Define meat science and meat technology. 3
2. a) Is meat a food? Discuss the food value of meat. 5
b) Draw and label the wholesale cuts of a beef carcass. 4
c) Write short notes on slaughter house by-products. 3
3. a) Mention the post mortem changes, chemical properties and shelf-life of cattle, sheep and poultry meat. 5
b) Briefly discuss the application of rigor mortis and acidification of rigor mortis in meat industry. 4
c) What do you know about rigor mortis and acidification? 3
4. a) What is grading of meat? Write down the importance of grading of goat meat. 5
b) What are the different grades of cattle meat? Write down their characteristics. 4
c) What is tenderization of meat? 3

SECTION: B

5. a) Discuss red meat and white meat. 3
b) What do you mean by meat composition and quality? Discuss. 4
c) Shortly discuss the categories of processed meat products. 4
6. a) What is packaging of meat? Discuss the importance of packaging of meat and meat products. 4
b) What is differentiation of meat? Discuss different types of differentiation of meat. 4
c) How could you differentiate meat of cattle and buffalo? 4
7. a) Briefly discuss the sanitation and hygiene of meat plants. 4
b) Write short notes on HACCP. 4
c) Mention the major constraints to establish a meat industry in Bangladesh. 4
8. Write short notes (any three) on: 3 X 4 12
a) Aging and pH of meat
b) Production background of PSE and DFD meat
c) Non meat ingredients
d) Meat processing technology
e) Mechanical deboning

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2013
Subject: Nutritional Evaluation of Food Processing (Theory)
Course Code:– NFP-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 no. 1 and 6 are compulsory. Use separate answer scripts for each section. Split answer is discouraged.)

SECTION: A

1. a) Define food processing. 2
b) Classify food processing methods with example. 3
2. a) How does climate change affect the quality of fruits and vegetables? 2
b) Mention the names of some symptoms of heat and solar injury in fruits and vegetables. How can we overcome these effects? 8
3. a) What are the major objectives of packaging? 2
b) Which chemicals usually migrate from packaging materials into food? 3
c) Describe in brief the adverse health effects of packaging materials. 5
4. a) What do you know about High Pressure Processing? 3
b) Differentiate between HPP and blanching. 3
c) Discuss the effect of HPP on the nutritional composition of food. 4
5. a) Briefly discuss the food safety issues and challenges of canned food. 5
b) Compare fresh, frozen and canned food. 5

SECTION: B

6. a) Briefly discuss the bio-active compounds that may be found in processed food. 5
7. a) What are the exogenous and endogenous toxins present in food? In what way you can get rid of them? 5
b) Compare the advantages and disadvantages of parboiling. 3
c) Which factors affect the kinds and rates of chemical reaction in food? 2
8. a) Explain in details the effects of storage on nutritional value of food. 5
b) Briefly state the treatments applied to the food commodity as supplements to temperature management. 5
9. a) What are the toxic substances you may find in pulses? How can you remove them? 5
b) Briefly discuss the impact of commercial processing of meat and fish on their nutritive values. 5
10. Write short notes on:
a. Fermentation 3
b. Germination 3
c. Desirable changes of nutrients during food processing 4

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2013
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 no. **1** and **6** are compulsory. Use separate answer scripts for each section. Split answer is not allowed.)

SECTION: A

1. Differentiate between-(a) Baking powder and baking soda
(b) Cocoa powder and cocoa butter 5
2. a) What is baking? Classify the bakery products with example. 2
b) Describe the principles of yeast leavening baking. 4
c) Narrate the causes and prevention of the defects of chemical leavened baking. 4
3. a) Which gas is produced during baking? What are the mechanisms of gas production and retention in baking? 3
b) Enumerate some chemical leavening acids with common name and N.V. 3
c) How air can be incorporated into batters and doughs? 4
4. a) Give an overview on bread staling and ropiness. 4
b) Discuss briefly the wheat protein and list the components of gluten. 3
c) Write down the properties of sugar. 3
5. a) What do you mean by chocolate? Classify chocolate with examples. 3
b) Give a detail description on manufacturing process of noodles. 7

SECTION: B

6. Write short notes on Health aspects of eating candy and sugar substitutes. 5
7. a) Define confectionary. Classify confectionary products based on sugar and chocolate. 3
b) Describe the manufacturing process of cocoa and chocolate with defects during production. 7
8. a) How physical tests are done to evaluate the quality of baking? 5
b) Define breakfast cereals. Classify breakfast cereals with production flow corn flakes. 5
9. a) Which reactions take place during baking? Describe it with a figure. 7
b) Mention the basic principles of HACCP required in a food industry. 3
10. a) How straight-dough system, sponge-and-dough system and continuous system are applied in baking? 6
b) Highlight the functions of flour and salt in baking. 4

Chittagong Veterinary and Animal Sciences University
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BFST 2nd Year 2nd Semester Final Examination, 2013
Subject: Food Plants Design, Layout & 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 no. **1** and **6** are compulsory. Use separate answer scripts for each section. Split answer is not allowed.)

SECTION: A

1. Briefly explain effective planning and plan design. 5
2. a) Differentiate between COP (clean out of place) and CIP (clean in place) of wet cleaning process. 3
b) Write down the principle of hygienic design of food plants. 3
c) Write how you would plan a building at a selected site. 4
3. a) Classify water used in food and beverage industries. 2
b) Briefly explain chemical disinfection methods for removal of microorganism. 4
c) Describe with figure an activated sludge system in waste treatment. 4
4. a) Define profit volume ratio and capital investment cost. 2
b) How would you calculate fixed cost? Give an example of fixed cost. 4
c) Show with an example, how capacity utilization of a food plant affects cost of production. 4
5. a) Name some chemical detergents which are used for cleaning machineries and equipment. 2
b) Give a brief account of personnel health of factory employees. 3
c) Enumerate colour coding system and Japanese "5" s system in GMP. 5

SECTION: B

6. Classify food wastes .Explain secondary treatment of food wastes. 5
7. a) Describe about precipitation process for removing hardness of water. 3
b) Write down in details the main areas of application for anaerobic process in food waste treatment. 3
c) What are the stages of digestion of anaerobic system? 4
8. a) Discuss the components of a food plants layout. 5
b) How would you determine water quality? 5
9. a) Describe with figures the structures of cranes and hoists. 3
b) What are the points to be considered for selecting appropriate material handling operations? 3
c) Describe about screw conveyor and develop equation for determining capacity and horse power. 4
10. a) Write what you know about labour welfare. 3
b) Show the relationship between profitability and productivity. 4
c) A processor produced 180 ton/month using 150 raw material/month and 26,600 man hr/month .Estimate its material productivity and labour productivity. 3

Chittagong Veterinary and Animal Sciences University
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BFST 2nd Year 2nd Semester Final Examination, 2013
Subject: Cereal and Legume Technology (Theory)
Course Code: CLT-202

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question no. **1** and **6** are compulsory. Use separate answer script for each section. Split answer is not allowed.)

SECTION: A

1. Illustrate the production trends of rice and wheat in Bangladesh. 5
2. a) Define Gelatinization temperature. 2
b) Indicate the implication of distribution of nutrients in rice grain. 4
c) How amylose content affects the palatability characteristics of rice. 4
3. a) Describe about Brabender Farinograph and Brabender Extensograph. 5
b) Why soymilk is considered a healthy alternative to cow's milk? 5
4. a) Define High fructose corn syrup and write down the importance of maize utilization. 5
b) Describe the manufacturing process of 'Lager beer' from barley. 5
5. a) Define Tempering of rice and Describe the fundamental principles of safe drying of paddy. 5
b) Give the nutrient specification of enriched rice and describe about artificial rice making method. 5

SECTION: B

6. Differentiate between Bag Storage and Bulk Storage. What do you mean by rural storage structure? 5
7. a) Explain the following flour varieties: Atta, Maida and Suji. 3
b) Define extraction rate of wheat flour. Describe modern flour milling process with flow diagram. 7
8. a) Describe the principle of Parboiling and write down the precautions one should follow in parboiling process. 5
b) Enumerate the various properties of parboiled rice. 5
9. a) Define degree of milling? How it could affect rice quality? 4
b) Name the various equipment involved in modern rice milling system. Describe milling procedure steps. 6
10. a) Write down the manufacturing process of pasta. 5
b) Give the diagram of wet milling process of pulses and describe the main uses of pulses in Bangladesh. 5