Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Food Microbiology (Theory)
Course Code: FMB-202

Full Marks: 70 **Time: 3 Hours**

(Figures in the right margin indicate full marks. Answer **FIVE (5)** questions from each section. **Split answer is not allowed**. Use separate answer scripts for each section.)

Section: A

1. a) Outline the historical features in the development of food microbiology. 3
   b) Write down some groups of bacteria that are important in food microbiology. 4

2. a) Discuss the roles of P^H in influencing the microbial activity in food sample. 2
   b) Compare and contrast three most important kinds of biological spoilage of commercially canned foods. 5

3. a) Define thermal death time (TDT) and thermal death point (TDP). 2
   b) Describe the methods that commonly used for preservation of foods at low temperature. 5

4. a) Describe the factors that influence the kind and rate of spoilage of fish. 4
   b) Write down the roles of national and international food control agencies in relation to consumer protection. 3

5. a) What is single cell protein (SCP)? 2
   b) Define and classify food borne diseases. 5

6. a) Write down different types of off flavor of eggs with causal organisms. 4
   b) Mention the basic principles of food preservation. 3

Section: B

7. a) Define following terms: Pasteurization, Dehydrofreezing, Metacryotic fluid, D-value. 4
   b) Write down the major properties of an ideal antimicrobial preservative. 3

8. a) Name the intrinsic factors of food that dictate microbial activity. 3
   b) What are the basic criteria for fitness of food? 2
   c) Classify foods with example by ease of spoilage. 2

9. a) Mention the natural barrier of egg that can prevent microbial growth and invasion. 4
   b) Write down the name of some fermented food products. 3

10. a) Define HACCP. Sketch the HACCP system of a milk processing unit. 5
    b) State the conditions necessary for outbreak of botulism. 2

11. a) What types of professionals are involved in an outbreak investigation team? 3
    b) Mention the primary functions of CAC. 3
    c) What is meant by food control? 1

12. a) Write down the causal agent of the following conditions: TA spoilage, Blue milk, Black rot of egg, Q-fever, Botulism, Whiskers on meat, Dairy mold. 1X7 =7

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Food Plants Design, Layout and Management (Theory)
Course Code: PDL-202 (T)

Full Marks: 70 **Time: 3 (three) hours**

(Figures in the right margin indicate full marks. Answer **four (4)** questions from each section where question no 1 and 6 are compulsory. **Fractions of each question must be answered together.** Use separate answer scripts for each section.)

SECTION: A

1. a. Define Good Manufacturing Practices for food processing industry. 2
   b. Illustrate the objectives of material handling in a food industry. 3

2. a. What are the rules should be followed for Order and Safety? 4
   b. What factors should be considered for hygienic design, design factors, construction and layout of a food plant building? 6

3. a. Name the methods of removing micro-organisms from water. 2
   b. What are the requirements for selection of the desirable plant buildings site? 4
   c. Name the different types of floors of plant. Describe about Tile or Paver floor. 4

4. a. Describe about Bucket elevator. Develop equation for determining N and H_{pth}. 4
   b. Determine the capacity of a screw conveyor, When screw dia is 0.047m, shaft dia 0.012m, Pitch dia 0.041m, housing dia 0.057m, bulk density of paddy 650 kg/m^3, while rpm is 1000. Also determine the Hp of the equipment for horizontal conveying of paddy when F=0.4 and length of the conveyor is 10 m. Assume missing data if any. 6

5. a. Name some coagulating agent used for water treatment. 2
   b. Enumerate water quality requirement for using in the food and beverage industries. 4
   c. Draw, level and explain pressure sand filter. 4

SECTION: B

6. a. Define Super chlorination. 2
   b. Discus about removal of Hardness of water. 3

7. a. Describe about Zeolite process for softening water. 3
   b. Explain sedimentation method for water treatment. 3
   c. Enumerate Break point curve in chlorination. 4

8. a. What are the waste materials produced during food processing. 2
   b. Write down the application of anaerobic process in waste treatment. 3
   c. Illustrate the methods for the ultimate disposal of sludges. 5

9. a. Construct Break even chart and show when profit or loss occur. 4
   b. Consider a company selling 500000 units at a price of Tk. 1.5 per unit where variable cost per unit is Tk 1.00 and the fixed cost is Tk. 100000. Construct a break even chart and indicate the profit. Also show what happens to profit when fixed cost becomes Tk.200000. 6

10. a. Describe long term plan for production with an example. 4
    b. Write short notes on: any three (3) 2x3=6
       (i) Organization,
       (ii) Labour law,
       (iii) Company,
       (iv) Time value of money.

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BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Food Chemistry (Theory)
Course Code: FCM-202

Full Marks: 70 **Time: 3 Hours**

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Section: A

1. a) Mention the names of protein determination methods. 2
   b) Define bound water and free water. 3

2. a) What is amino acid imbalance? 2
   b) What do you mean by protein factor and denatured protein? 3
   c) Describe the Kjeldahl method for estimation of nitrogen and protein from a food sample mentioning all required reagents. 5

3. a) What are gels? 1
   b) Describe the properties of gel. 2
   c) Explain the role of emulsifier. 3
   d) Describe with flow diagram the water treatment plant of fire water and potable water. 4

4. a) What are minerals? Discuss the functions, effect of deficiency, absorption and excretion of iron and calcium. 7
   b) What are trace elements? What are the functions of trace elements in humans? 3

5. a) How can you purify a solid organic compound by crystallization process? 6
   b) What do you mean by distillation? Discuss the operation procedure of a distillation unit with a neat diagram. 4

Section: B

6. a) What is essential fatty acid? 1
   b) Write down the effects of essential fatty acid deficiency in humans. 4

7. a) What are lipids? Discuss in details the classification of lipids with examples. 7
   b) Briefly discuss the chemical properties for identification of natural fats and oils. 3

8. a) Write a short note on classification of vitamins. 4
   b) Write down the functions, sources and effect of deficiency of vitamin B_1 and B_2. 6

9. a) Give some function of carbohydrates. 2
   b) Briefly discuss the chemistry of starch. 3
   c) Mentioning preparation of a sample, describe how you can analyze starch from it. 5

10. a) Discuss the effect of excess water intake on water balance in the body. 2
    b) Draw the chemical structure of tryptophan, valine and methionine. 3
    c) Describe the change of protein during processing. 3
    d) What is foam? Mention the name of one antifoaming agent. 2

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Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Cereal and Legume Technology (Theory)
Course Code: CLT-202 (T)

Full Marks: 70 **Time: 3 (three) hours**

(Figures in the right margin indicate full marks. Answer **four (4)** questions from each section where question no 1 and 6 are compulsory. **Fractions of each question must be answered together.** Use separate answer scripts for each section.)

SECTION: A

1	a.	Give common and scientific names of the eight major cereals in the world.	2
	b.	Enumerate in brief the goals and importance of Cereal and Legume Technology education.	3
2	a.	Write down the factors affecting the composition of rice.	2
	b.	What are the primary basis for rice quality for cooking and processing behavior?	4
	c.	Name the various tests employed for assessing cooking and processing quality of rice. Describe one of them.	4
3.	a.	What are the products and by products of rice milling industry?	2
	b.	Describe the coating method for enrichment of rice.	3
	c.	Describe the causes and mechanism of cracking of rice during drying. Enumerate preventive measures of cracking.	5
4.	a.	Describe various bleaching agents, which are usually used for treatment of wheat flour.	4
	b.	What is Maturation? Briefly describe the action of improver and various improving agents.	6
5.	a.	Differentiate between bag storage and bulk storage.	3
	b.	What are the chemical changes occurred in food grains during storage?	3
	c.	With the help of neat sketch show modern flour milling process.	4

SECTION: B

6.	a.	What is wort?	1
	b.	Why low protein nitrogen content barly are more acceptable for beer production.	4
7.	a.	Briefly describe the modern rice milling system.	3
	b.	Enumerate the preventive measures taken during modern parboiling process.	3
	c.	Describe the process of parboiling.	4
8.	a.	Give the diagram of wheat kernel.	3
	b.	Describe in brief roller milling system of wheat.	3
	c.	Differentiate between Tempering of rice and wheat.	4
9.	a.	Name the various tests employed for evaluation of wheat flour.	1
	b.	Give the classification of breakfast cereals. Describe in brief the manufacturing process of corn flakes.	4
	c.	What do you mean by " Bread Staling'" and "Rope in bread"? How do you prevent these defects?	5
10.	a.	Describe in brief the manufacturing process of beer form barley.	4
	b.	Write short notes on: (i) Malting system, (ii) Dhal milling process, (iii) Cone polisher.	2x3=6

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Nutritional Evaluation of Food Processing (Theory)
Course Code: NFP-202 (T)

Full Marks: 70 **Time: 3 (three) hours**

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question no **1** and **6** are compulsory. **Fractions of each question must be answered together.** Use separate answer scripts for each section.)

SECTION: A

1. What are the nutritional changes usually occurred during processing of food? Note down your opinion that whether all these changes are desirable or not. 5

2. a) Define food packaging. 2
   b) Why should we do packaging? 2
   c) What are the chemicals usually migrate from packaging materials into food? 3
   d) Mention the disorders in human due to negative effects of packaging materials. 3

3. a) "A number of nutrients are lost during commercial processing of food"- how does it happen? 3
   b) Shortly describe the pre-harvest and post-harvest losses of cereal grains at various stages of processing. 5
   c) What are the environmental and cultural factors that affect the quality of food? 2

4. a) What do you mean by food processing? 2
   b) Describe the food processing methods with example. 4
   c) Compare the nutritional composition of fresh, frozen and canned fruits and vegetables. 4

5. a) What is food preservation? 2
   b) Elaborately describe the effects of preservation methods on nutrient composition of food. 5
   c) Briefly describe the benefits of taking fermented food. 3

SECTION: B

6. How do pre harvesting and harvesting factors affect the nutritional composition of fruits and vegetables? 5

7. a) What are the supplemental post harvest technology procedures that are usually used during processing of fruits and vegetables? 3
   b) Discuss all the treatments in food processing that are involved in manipulation of the environment. 7

8. a) What is food quality? 2
   b) How do soil, water and growing conditions affect nutritional value of food? 3
   c) "Storage has a big impact on nutritional value of food "- Give your opinion on the above statement. 5

9. a) What are the toxic factors usually present in pulses? How can you remove these factors? 5
   b) What do you know about HPP? 2
   c) Write down the effect of HPP on the composition of food. 3

10. Write down short notes on the following topics (Any Two): 5X2

    a) Blanching
    b) Potential impact of climate change on the quality of fruits and vegetables
    c) Importance of Germination

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Technology of meat products (Theory)
Course Code: TMP-202 (T)

Full Marks: 70 **Time: 3 (three) hours**

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SECTION: A

1.	a) What do you know about meat processing technology?	2
	b) Discuss briefly about the categories of processed meat products.	4
	c) What are the methods of meat processing technolo0gy? Discuss briefly.	5
2.	a) What is meant by slaughter of animals?	3
	b) What are the techniques for meat and meat product preservation?	3
	c) Write down the composition and structure of meats	6
3.	a) Briefly discuss the impact of packaging methods of poultry meat preservation.	5
	b) What are the affects of aging in tenderization of meat?	3
	c) Poultry flesh is superior to red meat in nutritious point of view - explain.	4
4.	a) State the role of P^H in meat industry.	3
	b) Define rigor motis. What role it plays in meat industry?	4
	c) What is differentiation of meat? Discuss the different types of differentiation.	5

SECTION: B

5.	a) What is tenderization of meat?	2
	b) Is PSE and DFD meat dangerous to eat? Justify your opinion.	4
	c) How can you evaluate meat as food.	5
6.	a) What is salting and curing of meat?	3
	b) How can you grade the manufacturing of meat from cattle?	4
	c) Draw and label the whole sale and retail cuts of beef carcass.	5
7.	a) What is slaughter-house by-products?	3
	b) What is quality of meat? How can you produce the quality meat from a goat.	4
	c) What is non-meat ingredients? Briefly discuss about different categories of non-meat ingredients.	5
8.	Write short notes on any four(4)	3X4=12

a) Meat industry in Bangladesh. b) Meat science and technology.
c) Post-mortem changes of meat. d) HACCP e) Preservation of meat by canning.

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd Year 2nd Semester Final Examination, 2012
Subject: Baking and Confectionary Technology (Theory)
Course Code: BCT-202 (T)

Full Marks: 70 **Time: 3 (three) hours**

(Figures in the right margin indicate full marks. Answer **Four (4)** questions from each section where question no **1** and **6** are compulsory. **Fractions of each question must be answered together.** Use separate answer scripts for each section.)

SECTION: A

1. Write short notes on: 2.5×2=5
   a) Yeast
   b) Shortening agent.

2. a) Define Baking. Write down the functions of any four ingredients needed in baking. 4
   b) Describe the principles of baking for bread manufacturing. 3
   c) Write down the principles of chemical leavened baking. 3

3. a) What is chocolate liqour? Give the composition of chocolate liqour. 2
   b) What is breakfast cereal? Classify breakfast cereals. 3
   c) Briefly describe the manufacturing process of corn-flakes. 5

4. a) What is cocoa solid? Give the composition of cocoa solid. 2
   b) Briefly describe the defects of bread. 3
   c) Write down the recipe for preparation of sweet biscuit. Describe any one system of baking process. 5

5. a) Describe the manufacturing process of cocoa powder and chocolate. 5
   b) Give an overview of reactions of baking. 5

SECTION: B

6. Write short notes on: 2.5×2=5
   a) Conching
   b) Bread Staling

7. a) Write down the production defects of chocolate. 2
   b) Define confectionery. Write down the function of sucrose, invert sugar and maple sugar. 4
   c) Giving the flow chart, describe manufacturing process of pasta. 4

8. a) Why sugar substitutes are used in food industry. 2
   b) What is candy? Classify candies with examples. 3
   c) How will you do physical tests on doughs and slurries? 5

9. a) What is GMP? Give an overview on GMP in brief. 8
   b) Mention the basic principles of HACCP required in a food industry. 2

10. a) Write down the principle of air leavened baking with the incorporation of air into butters and doughs. 3
    b) Why sugar concentration is important to control candy quality. 2
    c) Classify noodles. Describe manufacturing process of it. 5