Chittagong Veterinary and Animal Sciences University

Faculty of Food Science and Technology

BFST 2nd Year 2nd Semester Final Examination 2017

Course Title: Food Microbiology

Course Code: FMB-202

Full Marks: 70 **Time: 3 hours**

Figures in the right margin indicate full marks. Answer any five (5) questions from each section. Use separate answer scripts for each section. Split answer is strongly discouraged.

SECTION-A

1.	a)	Outline the historical features in the development of food microbiology.	3.0
	b)	Write down some group of fungi, yeast and bacteria that important in food microbiology.	4.0
2.	a)	Describe the role of pH and moisture in influencing the microbial activity in the food sample	4.0
	b)	Define thermal death time (TDT) and thermal death point (TDP).	3.0
3.	a)	How do you preserve food using low temperature?	4.0
	b)	Define Z value and D value.	3.0
4.	a)	Describe some defects of canned products.	4.0
	b)	Write down the methods of food preservation.	3.0
5	a)	Compare food infection and food intoxication.	3.0
	b)	Describe nonbacterial food borne illness that caused by fungus, virus, rickettsia and parasite.	4.0
6	a)	What is food additive and feed additive?	1.0
	b)	How can you say a food additive is ideal? Give example of ideal food additive.	4.0
	c)	Mention evidences of fish spoilage.	2.0

SECTION-B

7.	a)	What do you mean by single cell protein (SCP)? Enlist microbes used for SCP.	1+2
	b)	Define HACCP. Give an example of its application in food industry.	3+1
8.	a)	Define food borne zoonotic disease with example.	2.0
	b)	What is food control? Who are responsible for food control?	2+1
	c)	Differentiate CCP1 from CCP2.	2.0
9.	a)	Tabulate microbial enzymes with their application in food industry.	5.0
	b)	Mention biological spoilage of can.	2.0
10	a)	What are the causes of food spoilage?	2.0
	b	Describe the changes of lipid in a food.	3.0
	c)	Mention the bacteriological quality of drinking water according to W.H.O.	2.0
11	a)	Describe preservation and spoilage of egg.	4.0
	b)	Briefly describe the preservation of fish and sea foods	3.0
12	a)	Describe HACCP and its uses.	7.0

Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination 2017
Subject: Baking and Confectionary Technology (Theory)
Course Code: BCT:202

Full Marks: 70 **Time: 3 hours**

(Figures in the right margin indicate full marks. **Answer any four (4) questions** from each section where **question no. 1 and 6 are compulsory**. Use separate answer script for each section. **Split answer is strongly discouraged**.)

Section-A

1. What is baking? Write down the principle of baking. 1+4=5

2. a) Discuss about the steps of baking. 5
   b) Analyze the importance of Falling Number Test. 5

3. a) How can you differ baking powder from baking soda? 2
   b) Briefly describe the problems be occurred in cake making with possible causes. 5
   c) What kind of water should be used in baking industry? How can you rectify the water for usage? 1+2=3

4. a) Enlist the ingredients of baking. Describe the ingredients with their functions. 1+5=6
   b) Illustrate quality control procedure of flour industry. 4

5. a) Define confectionary. Sketch and briefly discuss with technological flow sheet of cocoa and chocolate manufacturing process. 1+5=6
   b) Write short notes on: (i) Cocoa butter, 2x2=4
   (ii) Conching and Tempering.

Section-B

6. a) Define breakfast cereal. Classify breakfast cereal. 1+2=3
   b) Describe the health benefits of breakfast cereal. 2

7. a) "Yeast is a potent source of energy" – Justify the statement. 5
   b) Describe pasta manufacturing procedure with process flow sheet. 5

8. a) Differentiate between hard wheat and soft wheat. 2
   b) Write down the formulation and manufacturing process of biscuit. 5
   c) What are the defects in biscuit? Describe their probable causes. 1+2=3

9. a) Define alternative sweeteners with associated characteristic. 4
   b) Write down the mechanism of gelatinization. 3
   c) Classify rice flour. Describe the problems with rice flour. 1+2=3

10. a) Write short notes on: (i) HACCP in baking industry, 2.5x4=10
   (ii) Imitation chocolate and defects of chocolate,
   (iii) Brabender farinograph,
   (iv) Amylograph.

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination 2017
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 any four (4) questions** from each section where **question no. 1 and 6 are compulsory**. Use separate answer script for each section. **Split answer is strongly discouraged.**)

Section-A

1. What is social cost benefit analysis? How the functionality of a plant building is important in the process activity? 1+4=5

2. a) What do you mean by building and building design? What are the various issues a food engineer needs to consider for planning the building on the site? 2+4=6
   b) Briefly explain the criteria for a good plant layout. 4

3. a) What do you mean by food machinery design? Write down the selection criteria of food processing equipment design. 2+4=6
   b) Briefly describe the general foundation types of a building. 4

4. a) What are the utilities commonly used in food industry? 2
   b) Design electric supply system for food processing industry. 3
   c) Describe the different cleaning techniques used in food processing industry 5

5. a) How does material handling differ from mass transfer? Describe a pneumatic conveyor with neat diagram. 2+3=5
   b) Boxes of 220 mm X 180 mm X 100 mm have to be conveyed by a belt conveyor of sufficient belt strength, at a rate of 2000 box per hour. What will be the size and speed of the conveyor? Place the boxes with the gap of 200 mm between boxes and calculate the site clearance? 5

Section-B

6. Write down the key Good Manufacturing practices used in all food processing industry. 5

7. a) What do you mean by standard operating procedure? 2
   b) Describe the waste water treatment process of a food processing industry? 4
   c) What is meant by CIP? Describe the basic procedure of a typical CIP program in food industry. 1+3=4

8. a) Define marginal cost and Break-even Analysis. Write down the function of management. 2+3=5
   b) Consider a carbonated soft drink industry, has fixed express of 500000 taka. Selling price per soft drinks can is 20 taka; variable cost per can is 12 taka. Find out break-even-point in unit and sales. 5

9. a) What do you mean by organizational structure? Describe among different organizational structure. 2+3=5
   b) Explain the concept and characteristics of company. 5

10. a) Define food service system. Briefly describe the different types of food service system. 1+4=5
    b) Briefly describe the principal flooring materials for "chemical proof" floors. 5

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination 2017
Subject: Nutritional Evaluation of Processed Food (Theory)
Course Code: NFP-202 (T)

Full Marks: 70 **Time: 3 hours**

(Figures in the right margin indicate full marks. **Answer any four (4) questions** from each section where **question no. 1 and 6 are compulsory**. Use separate answer script for each section. **Split answer is strongly discouraged**.)

Section-A

1. What is processed food? Categorize processed food as proposed by the IFIC. 1+4=5

2. a) Enlist the types of browning reaction. 2
   b) Briefly describe the adverse effects of browning reaction on nutritional quality of foods. 4
   c) How do you control the enzymatic browning reactions in food industry? State your opinion about this. 4

3. a) What do you mean by high pressure treatment on food preservation? 4
   b) Narrate the effect of high pressure treatment on biological materials of food. 6

4. a) How does Riboflavin degrade during light exposure? 5
   b) Explain the effects of commercial processing on nutritional composition of cereal and cereal products. 5

5. Write down short note on any four of the followings~ 2.5X4=10
   i) Caramelization temperature
   ii) Irradiation
   iii) Ethylene treatment
   iv) Fast Food
   v) Fumigation

Section-B

6. What is shelf life of food? Briefly describe the effects of storage on the nutrient content of processed food. 2+3=5

7. a) How does light intensity affect the rate of formation of precursors of Ascorbic Acid? 3
   b) Summarize the advantages and disadvantages of processed food. 7

8. a) State the relative stabilities of Vitamins A, D, E, K under various conditions. 4
   b) Narrate the impact of soil fertility and fertilization on nutrient content of foods. 6

9. a) Explain the effects of agricultural practices and post-harvest factors that influence the composition and nutritional quality of fruits and vegetables. 5
   b) Briefly discuss the recommendations for harvest and post-harvest procedures to maintain nutritional composition of fruits and vegetables. 5

10. Write down short notes on any four of the followings~ 2.5X4=10
    i) Lipid browning
    ii) Caramelization process of sucrose
    iii) Future challenges of Food Fortification in context of Bangladesh
    iv) Objectives of Nutrification of Food
    v) Purposes of Food Packaging

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination, 2017
Course Title: Food Chemistry (Theory)
Course Code: FCM-202 (T)

Full Marks: 70 **Time: 3 hours**

[Figures in the right margin indicate Full Marks. Answer any four questions from each section where **question no. 1 & 6 are compulsory**. Use separate answer scripts for each section. **Split answer is strongly discouraged.**]

SECTION-A

1. Write down the structure of the following compounds: 05
   i) Lechithin
   ii) Glycerol
   iii) Ergosterol
   iv) Polysaccharide
   v) Methionine

2. a) State the role of multivitamins. Give examples. 1+1=02
   b) Why is 'Vitamin D' important for human? 02
   c) Discuss the chemistry and functions of riboflavin, folate, pantothenic acid and thiamine. 4x1.5=06

3. a) What are food flavors? Discuss its role in food processing. 1+2=03
   b) Enlist the respective chemicals which are responsible for different food flavors. 05
   c) Briefly explain different sources of pigments. 02

4. a) Give the concept of 'Functional Properties'. 01
   b) Analyze the nutritional changes of protein during cooking. 04
   c) 'Edman's reagent is better than Sanger's reagent'. Briefly discuss. 05

5. a) Define lipid. 01
   b) Why is lipid called 'Concentrated Energy Source'? 02
   c) Summarize the basic techniques of SFC altering process. 07

SECTION-B

6. Briefly discuss the scope of food chemist in respect to Bangladesh. 05

7. a) 'Lead is called ever present heavy metal'. Justify the statement. 02
   b) List different types of food items which reduce heavy metal absorption. How do they work? 2+4=06
   c) How does Arsenic cause 'Black Foot' disease? 02

8. a) Define water activity. 01
   b) Briefly discuss about different types of food water. 03
   c) Draw a pictorial diagram of drinking water treatment plant. 06

9. a) Explain the chemical methods of carbohydrate analysis. 05
   b) Illustrate sample preparation procedure for carbohydrate analysis. 03
   c) Differentiate between amylose and amylopectin. 02

10 Write short notes on the following;
   i) Tertiary structure of protein
   ii) Nonenzymatic browning reaction
   iii) Role of minerals in food
   iv) Hydrogenation of oil

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination 2017
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 any five (5) questions** from each section. Use separate answer script for each section. **Split answer is strongly discouraged**.)

Section-A

1. a) Define 'Meat products' and 'Meat processing technology'. Mention the indigenous stock of meat animals in Bangladesh. 2+1=3
   b) Mention the name of meat from different species of animal. Shortly describe about the meat consumption habits in different regions of the world. 2+2=4

2. a) Write approximate protein and fat contents of average beef, goat and chicken carcass. Discuss the importance of vitamin content of meat for human body. 1+2=3
   b) What is the difference between 'Plant protein' and 'Meat protein'? Illustrate the myofibrillar protein structure of muscle with schematic diagram. 2+2=4

3. a) Classify different types of processed meat products. 3
   b) State constraints and prospects of developing meat industry in Bangladesh. 4

4. a) Define 'Red meat' and 'White meat'. What are the significance of 'Red meat' and 'White meat' on human diet and health? 1+2=3
   b) Clarify the importance and use of functional meat considering human health. 4

5. a) Write down the mechanism of post-mortem acidification in meat. 3
   b) 'Meat is notoriously high in calories, cholesterol and saturated fat- all of which is accredited to growing health problems like obesity and heart disease'- justify the statement. 4

6. Write short notes on any two of the followings: 3.5+3.5=7
   a) DFD and PSE meat.
   b) Physical characteristics of beef and chevon
   c) Significance of post mortem acidification of meat

Section-B

7. a) Mention the importance of meat preservation. Explain different methods of meat preservation using high and low temperature. 1+2=3
   b) Compare single-layer Vs multi-layer films for meat packaging. Mention the importance of modified atmosphere packaging for meat and meat products. 2+2=4

8. a) Define non-meat ingredients. Differentiate meat extenders from fillers. 1+2=3
   b) When and why rigor mortis does occur? Mention the fate and importance of rigor mortis in meat industry. 2+2=4

9. a) Shortly describe about the mechanism of natural process of meat tenderization. 3
   b) 'Marination is the precondition of quality products'- explain. 4

10. a) What are the different grades of beef carcass? 3
    b) Write down the characteristics of different yield grades of beef carcass. 4

11. a) Write down the objectives of inspection of meat animal and carcass. State the general principles and guidelines for ante-mortem inspection. 3
    b) Shortly describe about HACCP for meat industry. 4

12. Write short notes on any two of the followings: 3.5+3.5=7
    a) Conventional Vs organic meat.
    b) Major slaughterhouse by-products.
    c) Harmful effect of preservatives in meat.

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination 2017
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 any four (4) questions** from each section where **question no. 1 and 6 are compulsory**. Use separate answer script for each section. **Split answer is strongly discouraged.**)

Section-A

1. Enumerate the pattern of distribution of nutrients in rice kernel and indicates it's implication in rice processing. 5

2. a) Describe the principle of parboiling and write down the precautions one should follow in parboiling process. 5
   b) Describe the causes and mechanism of cracking of rice during drying process. 5

3. a) How does brown rice differ to white rice? 3
   b) "Degree of milling affects the nutritional quality of rice" -Explain how? 4
   c) With the help of neat sketch describe the anatomical structure of rice kernel. 3

4. a) Briefly describe the method of flaked breakfast cereal preparation. 5
   b) Explain the malting and brewing characteristics of barley. 5

5. a) What is conditioning? Describe the principles of conditioning? 1+4=5
   b) Enumerates the factors influencing maize storage quality. 1
   c) How can you utilize the by-products of maize milling? 4

Section- B

6. Define rural storage structure. Write down the chemical changes occurring in food grains during storage. 1+4=5

7. a) Briefly mention the utilization of rice husk. Describe the artificial method of rice enrichment with proper specification. 2+4=6
   b) Describe in brief the various bleaching agents which are usually used for treatment of wheat flour. 4

8. a) Describe the various test employed for evaluation of wheat flour. Describe the functions of Brabender Farinograph and Brabender Extensograph with neat sketches. 2+3=5
   b) Name the important pulses of the world. Describe the main uses of different pulses in Bangladesh. 5

9. a) Discuss the various properties of parboiled rice. 5
   b) Briefly describe why soymilk is considered a healthy alternative to cow's milk. 5

10. a) Define Retrogradation. How does extraction rate affect the e milling system?
    b) Describe the following test for rice quality:
       (i) Water content
       (ii) Amylose content
       (iii) Alkali test