

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 2nd year 2nd Semester Final Examination, 2021
Course Title: Nutritional Evaluation of Processed Food
Course Code:-NFP-202(T)

Full Marks: 70

Time: 3 Hours

(Figures in the right margin indicate full marks. Answer four (4) question from each section where question number 1 and 6 are compulsory. Use separate answer script for each section. Split answer is strongly discouraged.)

SECTION-A

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|----|----|---|-------|
| 1. | a) | What is nutritional evaluation? | 1 |
| | b) | Write down the basic principles of food preservation. | 4 |
| 2. | a) | Define food processing. | 1 |
| | b) | Categorize the types of processed food. | 4 |
| | c) | Summarize the advantage and disadvantage of processed food. | 5 |
| 3. | a) | What do you mean by agricultural practice? | 1 |
| | b) | How does environmental factors influence the composition of agricultural crops? | 4 |
| | c) | Briefly explain the post harvesting factors effect on nutritional composition of food. | 5 |
| 4. | a) | What is thawing? Write down its advantages and disadvantages. | 1+2=3 |
| | b) | Demonstrate the effects of cooking or heat processing on various nutrients. | 5 |
| | c) | How can you minimize the cooking loss of nutrients? | 2 |
| 5. | a) | Dramatize the effects of commercial processing on fruits and vegetables to their nutrients. | 5 |
| | b) | Summarize the different types of processing on milk and milk products. | 5 |

SECTION-B

- | | | | |
|-----|------|--|--------|
| 6. | a) | List the types of food fortification. | 2 |
| | b) | Outline the objectives of fortification. | 3 |
| 7. | a) | Explain the caramelization. | 1 |
| | b) | Draw the steps of caramelization of sucrose. | 4 |
| | c) | Briefly describe the losses of nutritional value in foods due to the browning reaction. | 5 |
| 8. | a) | Define food packaging. | 1 |
| | b) | Classify different types of food packaging techniques. | 3 |
| | c) | Describe the effects of packaging on nutritional properties of dairy, bakery and vegetable products. | 6 |
| 9. | a) | What is enzymatic browning? Analyze the mechanism of enzymatic browning reaction. | 1+5=6 |
| | b) | Generalize the different technique taken to control of enzymatic browning. | 4 |
| 10. | a) | Write short notes (any two) to the followings: | 5x2=10 |
| | i) | History of canning | |
| | ii) | Nutrient stability in various processing condition | |
| | iii) | Ethylene treatment | |

Chattogram Veterinary and Animal Sciences University

Faculty of Food Science & Technology

BFST 2nd year 2nd Semester Final Examination, 2021

Course Title: 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 four (4) questions from each section where question number 1 and 6 are compulsory. Use separate answer script for each section.

Split answer is strongly discouraged)

SECTION-A

1. a) Write down name of some meat animal species in Bangladesh. How can you describe the meat consumption habits in different region of the world? 3.0
b) What is the present situation of meat industry in Bangladesh? State the potentials, prospects and constraints of meat industry in Bangladesh. 5.0
2. a) Define mechanically deboned meat (MDM), functional meat, DFD and PSE. 4.0
b) Discuss the physical, chemical, biological processes of meat identification of different food animals. 5.0
3. a) What is dressing percentage? State the factors that affect the dressing yield of food animal. 4.0
b) How can you record the carcass weight of different animal species? Describe it shortly. 5.0
4. a) What is meat preservation and processing? Enumerate various methods of meat preservation and storing techniques. 4.0
b) Discuss the different stages of canning meat products. 5.0
5. a) What is meat cut? Enlist the different meat cuts of cattle (beef) and sheep (mutton) 4.0
b) What is packaging of meat? Discuss the different methods of meat and meat products packaging with its merits and demerits. 5.0

SECTION-B

6. a) What is defectivemeat? When and how muscle convert in to meat? State briefly about the post-mortem acidification of muscle/meat. 4.0
b) What is cold shortening? Write down the mechanism of natural process of tenderization. 4.0
7. a) Shortly describe the protein and lipid content of meat. 4.0
b) Differentiate feed additives vs preservatives and meat extender vs meat fillers. 5.0
8. a) Mention the symbols used for anti-mortem and post-mortem inspection of carcass 4.0
b) Write down the objectives and facilities required for anti-mortem and post-mortem inspection of animal and carcass. 5.0
9. a) What are the sources of contamination in meat plant? Explain briefly how can you ensure effective cleaning and sanitation in a meat. 4.0
b) Shortly describe the harmful effects of preservatives used in food or meat. 5.0
10. a) Categories the different processed meat products with example. 4.0
b) Differentiate meat from different animal species by physical method. 5.0

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 2nd Year 2nd Semester Final Examination, 2021
Course Title: Food Plants Design, Layout and Management
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 number 1 and 6 are compulsory. Use a separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. Define the following terms: Food Plant, Food Plant Design, and Food Plant Layout. Give a brief description of a food plant design with a flow chart. 2+3=5
2. a) What do you mean by a feasibility study of a food plant design? How food processing is different from other processing activities in terms of plant design and location? 2+3=5
b) Enumerate in brief the criteria for food plant layout. 5
3. a) Define building design and list out the types of buildings and foundations. 4
b) Differentiate between the shallow foundation and deep foundation with the figure. 3
c) List out the purpose of hygienic equipment design. 3
4. a) Write down the seven basic principles that should follow for the hygienic design of food processing machinery. 4
b) Briefly describe the constructional characteristics of equipment that must be considered in selecting food processing equipment. 6
5. a) What do you mean by PLC (Programmable Logic Controller)? How does PLC operate in industrial automation and process control? 2+3=5
b) Define GMP and SSOP. Mention the rules of personal health and cleanliness for factory employees under GMP. 5

SECTION-B

6. a) Enlist the utilities for a food plant. How electricity is generated from a conventional coal-fired process? 1+4=5
7. a) Enumerate in brief the different levels of treatment/methodologies which are generally used in wastewater handling. 5
b) Give a brief description of "specific food industries' waste and their management". 5
8. a) Describe the color-coding system as preventive control in a food processing plant and the Japanese "5" S system in GMP. 5
b) Show the relationship between profitability and productivity. 3
c) A processor produced 180 tons/month using 150 raw materials/month and 26600 man hr/month. Estimate its material productivity and labour productivity. 2
9. a) Shortly describe the seven principles of the HACCP system. 5
b) List out the basic factors considered for selecting appropriate conveyor equipment in material handling operations. 5
10. a) Give an overview of the Food Service System. 5
b) Define Break-even point. 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. Calculate the break-even point and the profit. Also show what happens to profit when fixed cost becomes tk 250000. 5

Chattogram Veterinary and Animal Sciences University

Faculty of Food Science & Technology

BFST 2nd Year 2nd Semester Final Examination, 2021

Course Title: Cereal and Legume Technology

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 number 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. Enumerate the pattern of distribution of nutrients in the rice kernel and indicate its implications in rice processing. 5
2. a) Write down the various quality characteristics of rice. What are the primary basis for rice quality for cooking and processing behaviour? 3+3=6
b) Give the common and scientific names of the cereals of the world. 4
3. a) Describe the principles of parboiling and write down the precautions that one should follow in parboiling process. 6
b) Illustrate the causes and mechanism of cracking of rice during drying process. 4
4. a) What is degree of milling? How it could effect on rice quality? 2+2=4
b) Name the various equipment involved in modern rice milling system. Describe the modern rice milling process. 3+3=6
5. a) Define premix. Explain the necessity of raw rice enrichment. 4
b) Differentiate the tempering process among rice, wheat and pulse. Describe the artificial method of rice enrichment with proper specification. 3+3=6

SECTION-B

6. a) Define rural storage structure. Write down the chemical changes occur in food grains during storage. 1+4=5
7. a) List out the utilization of rice husk. 4
b) Define extraction rate of flour. Describe the various test employed for evaluation of degree of milling refinement. 1+5=6
8. a) Write down the fundamental action of improver and name some various improving agents. 5
b) Define wort. Why low nitrogenous barley is suitable for beer production? 1+4=5
9. a) Describe the main uses of different pulses in Bangladesh. 4
b) Briefly describe why soymilk is considered a healthy alternative to cow's milk. 6
10. a) Illustrate the importance of maize utilization and processing. 5
b) Shortly describe the following terms (any two): 2.5x2=5
 - i) Break-fast cereal,
 - ii) Malting operations of beer production,
 - iii) Fundamental principles of grain storage.

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 2nd Year 2nd Semester Final Examination, 2021
Course Title: Baking and Confectionary Technology
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 number 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. Write short notes on: 2.5x2=5
 - i) Mixing steps for ideal dough formulation,
 - ii) Wheat Protein.

2.
 - a) State the principle of chemical leavening baking. 3
 - b) Enumerate the major defects occur in a yeast leavened bakery product with possible remedies. 3
 - c) How creaming and two stage method are done to prepare a shortened cake? 4

3.
 - a) What do you mean by shortening? Highlight the necessity of adding adequate shortening in bread preparation. 1+1=2
 - b) Define confectionery with classification. 2
 - c) Discuss the Brabender Farinograph and Brabender Extensograph for the test of baking quality of flour. 6

4.
 - a) "Why gas production and retention are important in bread making?"- briefly explain. 4
 - b) Elucidate the chemical reactions occur in a baking process. 6

5.
 - a) What is contamination? List the sources of contamination in bakery product. 1+2=3
 - b) Which personal hygiene should be maintained to work in a baking industry? 4
 - c) Compare the advantages and disadvantages of baking powder and soda. 3

SECTION-B

6. Summarize the roles of major ingredients used to prepare a toffee. 5

7.
 - a) Define Neutralizing value (NV). Assume cream of tartar and tartaric acid has NV of 200 and 100, respectively. Justify their comparative efficiency. 1+3=4
 - b) Elaborately explain the procedure to prepare chocolate liquor from cocoa pods. 6

8.
 - a) Why rice flour is not considered as an ideal baking flour? 3
 - b) Differentiate between single-acting and double-acting baking powder. 3
 - c) Categorize chocolate and mention their acceptable composition. 4

9.
 - a) Illustrate a flow chart and explain the major processing steps of instant noodles preparation. 7
 - b) Why conching is important for final chocolate preparation? 3

10. Discuss the following bakery/ confectionery items: i) Caramel, ii) Invert Sugar, iii) Cookies, iv) Candy. 2.5x4=10

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination, 2021
Course Title: Food Microbiology (Theory)
Course Code: FMB-202 (T)

Full Marks: 70

Time: 3 hours

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

SECTION-A

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| 1. | a) Outline the historical features in the development of food microbiology | 3.0 |
| | b) Select two genera of bacteria from the following group: gas former, slime former, lactic acid former, halophilic, propionics and butyric. | 4.0 |
| 2. | a) Describe some defects of canned product. | 4.0 |
| | b) Mention the segmental steps of canning | 3.0 |
| 3. | a) Differentiate sterilization and pasteurization. | 2.0 |
| | b) Enlist different types of spoilage milk and briefly explain flavor and color change during spoilage milk. | 5.0 |
| 4. | a) What do you mean by food intoxication and food infection? | 2.0 |
| | b) List some bacterial food borne diseases with causal agent incubation period, duration and sign with food involved. | 5.0 |
| 5. | a) Define food microbiology. | 2.0 |
| | b) Enlist different microbial enzyme with source of its application. | 5.0 |
| 6. | a) What is the natural preservative? Write down the factors influencing the kind and rate of spoilage in fish. | 4.0 |
| | b) Define bactofugation and UHT milk. What are the conditions required for efficient milk pasteurization? | 3.0 |

SECTION-B

- | | | |
|-----|---|-----|
| 7. | a) Define the following terminology: hazard, critical control points, D value, quality assurance, sweetened condensed milk. | 4.0 |
| | b) List the modern food preservation method with examples, used for preservation of different foods. | 3.0 |
| 8. | a) What is metacryotic fluid? | 1.0 |
| | b) Suppose, you are appointed as the food microbiology officer in a school restaurant. Suddenly more than 70 school students were found suffering from vomiting and diarrhea with abdominal pain. What is your hypothesis, and how will you investigate the case? | 6.0 |
| 9. | a) Define food preservatives. Make a list of the various food preservatives currently in use the food industry, along with their maximum tolerance dose and specific target foods. | 5.0 |
| | b) What are the changes found on the surface meat during the aerobic growth of mold and yeast? | 2.0 |
| 10. | a) Define food intoxication. Write down the difference between infection and intoxication. | 3.0 |
| | b) What exactly do ICMSF and BSTI stand for? Mention five toxin producing organisms, their specific toxin, and the duration of symptoms associated with food poisoning. | 4.0 |
| 11. | a) What is infant botulism? What are the conditions necessary for an outbreak of botulism? | 4.0 |
| | b) What is vinegar? Briefly describe the radiation process for the preservation of food and food products. | 3.0 |
| 12. | a) What are the food control authorities currently playing a vital role in the context of Bangladesh? Mention their specific functions and activities. | 4.0 |
| | b) What is germicidal ice? What are the evidences that confirm fish spoilage? | 3.0 |

Chattogram Veterinary and Animal Sciences University

Faculty of Food Science & Technology

BFST 2nd year 2nd Semester Final Examination, 2021

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 four (4) questions from each section where question number 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

1. Explain the functions of triglyceride in food processing. 5
2. a) Define flavor, aroma and pigment with example. 3
b) Classify pigments on the basis of sources. 3
c) Explain the chemical methods of drinking water purification. 4
3. a) Write down the chemistry and physiological functions of vitamin A, E and B12. 5
b) Briefly explain different types of oxidations of lipid. 5
4. a) Enlist the name of common food flavors with their characterizing key chemicals. 5
b) Write down the mechanisms of antioxidant capacity in food. Discuss briefly the functions of lipid. 5
5. a) Define a_w . 1
b) What is the importance of a_w in food processing and preservation. 4
c) Draw a pictorial diagram of drinking water treatment plant. 5

SECTION-B

6. Draw the following structures- sucrose, lactose, histidine, amylopectin and pectin. 5
7. a) Define heavy metal. 1
b) How do heavy metals are absorbed in human body? 3
c) Explain the common toxicity mechanisms and sides of actions of heavy metal in human body. 6
8. a) Classify amino acids based on nutritional requirement. 2
b) Draw and explain the tertiary structure of protein. 2
c) Elaborate the functional properties of protein. 6
9. a) Briefly explain the chemical reactions of monosaccharide. 5
b) Analyze the chemical methods of carbohydrate analysis. 5
10. Write a short note on the following 4+3+3=10
 - a) Hydrogenation of oil
 - b) Water hardness
 - c) Sanger's and Edman's reagent