

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination 2021
Subject: Food Packaging (Theory)
Course Code: FPK-302 (T)

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any four questions from each section, where 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

Section-A

1. a) Define food packaging. 1
b) Explain the principles of food packaging. 4
2. a) What is micro-plastic? 1
b) How plastics are fragmented into micro-plastics and enter in food chain? 4
c) Elaborate the impacts of plastics on water, air and marine mammals. 5
3. a) Write down the packaging process of soft drinks, fresh meat and bakery products. 6
b) Sketch the stages in the manufacture of tin plate. 4
4. a) Enumerate the chemical and mechanical pulping process. 5
b) Describe the extrusion process for plastic materials production. 5
5. a) How moisture exchange effect food quality? 3
b) Write down the FDA regulation for food packaging. 4
c) Recognize the specific requirement needed during packaging of dehydrated foods. 3

Section-B

6. a) Draw a pictorial diagram of injection molding with short description. 3
b) Write down the properties of the following material during packaging: 2
i) Polyethylene.
ii) Polystyrene.
7. a) Draw the overview of micro-plastic sources, degradation and exposure to food chain and consequences to human health. 4
b) What are the troubles are formed from food packaging materials manufacturing? 4
c) How food packaging impacts on land pollution? 2
8. a) Classify recycled fiber with example. 2
b) Briefly explain the general steps of glass manufacturing process. 4
c) Describe different types of food packaging based on packaging materials. 4
9. a) State the major types of food container. 2
b) Differentiate between active packaging and convectional packaging. 2
c) Write down the properties and use of the following flexible packaging materials: 6
i) Polyamide.
ii) Aluminium foil.
10. Write short notes on: 10
i) Thermoforming process of polymer production
ii) Shelf life of packaged food products.
iii) Functions of food packaging.
iv) Heavy metals in paper based food packaging materials.

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 3rd Year 2nd Semester Final Examination, 2021
Course Title: Tea, Coffee, Cocoa, and Spices Technology (Theory)
Course Code: TSC-302 (T)

Full Marks: 35

Time: 2 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. Does tea go through fermentation before drying? 3
2. a) How does mulching reduce soil evaporation? 2
b) Write down the significance of physical and chemical withering. 3
3. a) What do you mean by tea biochemistry? State the concept of biochemistry of oxidation. 3
b) What is the healthiest way to decaffeinate tea? 2
4. a) How the 'Oolong tea' is manufactured? 2
b) Describe the manufacturing process of coffee. 3
5. a) Draw a schematic figure of a tea dryer and tea chest with labeling. 2
b) State the characteristics and terms that describing the liquor of made tea. 3

SECTION-B

6. How green tea is graded? 2
7. a) How can we benefitted from coffee? How coffee cherry is harvested? 2
b) What is CTC in tea processing? Briefly describe the CTC rolling techniques. 3
8. a) Write the note on imitation chocolate defects. 2
b) How cacao is processed into cocoa and chocolate? 3
9. a) What kind of quality should be maintained as emergence for spices? 2
b) What is bulk density? 'Bulk density is considered as a parameter in quality standard specifications for spice'-explain it briefly. 3
10. a) Mention the general functions of spices and state the role of spices in cookery. 2
b) Enlist the major flavor and color compounds found in herbs and spices. 3

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 3rd year 2nd Semester Final Examination, 2021
Subject: Food Trade and Laws
Course Title: FTL-302(T)
Full Marks: 35 Time: 2 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. | Define food trade. Classify food trade along with some examples. | 1+2=3 |
| 2. | a) Define domestic trade and international trade. | 2 |
| | b) List the criteria of international trade. | 3 |
| 3. | a) List out the major food control organizations in Bangladesh. | 1 |
| | b) Elaborate the major functions of BSTI. | 4 |
| 4. | List the major stakeholder ministries and departments with functions related with food control of Bangladesh. | 5 |
| 5. | What are the risks involved in international trade? How can we mitigate these risks in international trade? | 2+3=5 |

SECTION-B

- | | | |
|-----|--|-------|
| 6. | Define globalization. List out the factors of globalization. | 2 |
| 7. | a) State the principles and values of Bangladesh Food Safety Authority (BFSA). | 2 |
| | b) Give some recommendation of food control infrastructure development. | 3 |
| 8. | Briefly describe the international organization for standardization (ISO): ISO 2200 principle in food safety management. | 5 |
| 9. | Explain the laws and regulations of food additives used in Bangladesh. | 5 |
| 10. | How government and traders benefited from trade facilitation? Write down the principles of world Trade Organization. | 2+3=5 |

Full Marks: 35

Time: 2 Hours

(Figures in the right margin indicate full marks. Answer three (3) questions from each section where question number 1 and 5 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

SECTION-A

- | | | |
|----|--|-------|
| 1. | “Diet and nutrition are related to health”- Explain. | 3 |
| 2. | a) What is therapeutic diet? Briefly explain the principles to modify a normal diet to therapeutic diet. | 4 |
| | b) What are the differences between enteral and parenteral feeding? | 3 |
| 3. | a) Explain the parameters used in the diagnosis of Type-II Diabetes. | 2 |
| | b) What are the factors that contribute to obesity? Give an account of dietary modification and exercise pattern for a person suffering from overweight. | 2+3=5 |
| 4. | a) Discuss the responsibilities on a dietitian. | 3 |
| | b) Describe the common discomforts and disorders of pregnant women. | 4 |

SECTION-B

- | | | |
|--------|---|---------|
| 5. | What is supportive nutrition? Explain the routes of enteral nutrition. | 4 |
| 6. | a) Explain sodium restricted diet. | 3 |
| | b) Write down the physiological role basis of suckling reflex and the role of hormone in lactation. | 4 |
| 7. | a) What do you mean by Nephrotic syndrome? Summarize the dietary management of glomerulonephritis. | 1+4=5 |
| | b) What can cause unhealthy kidneys? | 2 |
| 8, 12. | Write short notes (any two) to the followings: | 3.5x2=7 |
| | i) Gestational diabetes mellitus | |
| | ii) Hypoglycemia | |
| | iii) Importance of balanced diet | |

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 3rd year 2nd Semester Final Examination, 2021
Subject: Dairy Products Technology
Course Title: DPT-302(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 answers are strongly discouraged.)

SECTION-A

- | | | | |
|----|----|---|-----|
| 1. | a) | Define cheese and classify it. | 3.0 |
| | b) | Write down the procedure of manufacture of cheddar cheese from whole milk. | 4.0 |
| 2. | a) | What do you mean by Functional Dairy Foods? List the common dairy products available in Bangladesh. | 4.0 |
| | b) | How will you prepare dahi in an organized dairy industry? | 3.0 |
| 3. | a) | State the manufacturing process of sweetened condensed milk. | 4.0 |
| | b) | Indicate recommended storage time and temperature for dairy products. | 3.0 |
| 4. | a) | Define milk powder with composition. | 3.0 |
| | b) | Compare the physical and sensory traits of drum rolled and spray dried milk powder. | 4.0 |
| 5. | a) | State the process of making Rosogolla at home. | 4.0 |
| | b) | Give a schematic diagram for Sandesh preparation. | 3.0 |
| 6. | a) | State the principles of cream separation. | 3.0 |
| | b) | Given 800kg cream testing 45% fat. How much skim milk testing 0.4% fat must be added to obtain 40% fat in the standardized cream? | 4.0 |

SECTION-B

- | | | | |
|-----|----|---|-----|
| 7. | a) | Classify dairy products with at least two examples of each group. | 3.0 |
| | b) | Briefly describe the factors affecting fat loss in skim milk during cream separation. | 4.0 |
| 8. | a) | Briefly describe the role of different ingredients in ice-cream manufacturing. | 3.0 |
| | b) | Describe the freezing process of ice-cream. What is over-run in ice-cream? | 4.0 |
| 9. | a) | Briefly describe the method of manufacture for butter. | 3.0 |
| | b) | Write short notes on: | |
| | | i) Emulsifier ii) Stabilizer | 4.0 |
| 10. | a) | State the common defects of cheese along with their causes and prevention | 3.0 |
| | b) | Write PFA rules for the following dairy products | 4.0 |
| | | i) Sweetened condensed whole milk | |
| | | ii) Unsweetened condensed whole milk | |
| | | iii) Sweetened condensed skim milk | |
| | | iv) Unsweetened condensed skim milk | |
| 11. | a) | Differentiate ice-cream from kulfi. | 3.0 |
| | b) | State the mechanism of bacterial growth in dahi during incubation. | 4.0 |
| 12. | a) | Define Dairy Whitener. State the manufacturing process and uses of dairy whitener. | 3.0 |
| | b) | State the formula and manufacturing process of infant milk food. | 4.0 |

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 3rd year 2nd Semester Final Examination, 2021
Subject: Statistics (Theory)
Course Title: STC-302 (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. a) Explain the term 'Statistics'. Give two related examples in the field of food science where you can use statistical methods. 5
b) What do you mean by population, sample and experimental unit? Give example. 3
2. a) Discuss the measure of central tendency. Which one is the best and why? 6
b) Illustrate the difference between discrete and continuous variables with example. 3
3. a) Why do we need dispersion. Write the basic difference of absolute and relative measures of dispersion. 6
b) What is standardized variable? Why do we need it? How will you detect outlier from a data set? 3
4. a) Define statistical probability. How does it differ from classical probability? Discuss the advantages and disadvantages of statistical probability. 6
b) The probability that a patient recovers from a rare blood disease is 0.4. If 5 people are known to have contracted this disease, what is the probability that
i) Exactly 3 survive ii) at least 2 survive
iii) at most 3 survive and iv) no more survive 3
5. a) What are the shape characteristics of a frequency distribution? Briefly discuss them. 6
b) What is standard error? Write down its importance. 3

SECTION-B

6. a) A survey was conducted to observe the relationship between food consumption and income. In which method will you apply to find out this relation in statistics? Define this terminology with properties. Test the significance of an observed coefficient. 5
b) Explain with example of the following terms: 3
i) Mutually exclusive events ii) Conditional probability
7. a) What is the test of significance? Briefly describe the steps of it. 6
b) Define: Test statistics, Power of a test, Type II error, Critical region, P-value, Alternative hypothesis. 3
8. a) Discuss the basic principles of Experimental design. 6

- b) Four market representatives (MR) were assigned to sell a new product. A rater was observed their daily performance. Test whether or not there is any significant mean sell difference among the MR's. 3
9. a) A homemade snack was made from two different types of flour. The variance of moisture content was known. How do you test whether there is any significant mean difference of moisture content between two types of snacks? 6
- b) What is binomial distribution? Write down the assumptions and properties of it. 3
10. a) What do you mean by Latin Squares Design (LSD). Set up a linear model of LSD. Describe the analysis of variance of LSD. 6
- b) Write down the application situation of Chi-square. 3

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination 2021
Subject: Technology of Sugar and Sugar Products (Theory)
Course Code: STH-302 (T)

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any four questions from each section, where 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

Section-A

1. a) Enlist the difference between white and brown sugar. 3
b) Write the constituents of sugar cane and its juice. 1
c) What type of product is sugar? 1
2. a) Discuss briefly different categories of sugar functional properties. 4
b) What factors influence sugarcane juice extraction? 3
c) How inversion of sucrose can be minimized? Also write the applications of inverted sugar. 3
3. a) What do you mean by unit operation and unit process? Discuss both units with example. 3
b) Discuss in detail about sulphitation process for clarification of cane juice. Why sulphitation process is most widely used now-a-days? 7
4. a) How air and water systems are polluted in nearby sugar industry? 3
b) How you can minimize the water pollution problems of sugar industries? 3
c) Why pumps and boilers are used in industries? What problems may occur if boiler feed water is not treated properly? 4
5. a) Mention the difference between molasses and sugar cane syrup. 2
b) Discuss the evaporation process with multiple effect evaporators. 5
c) Write the principle of vacuum pan in sugar industry. 3

Section-B

6. a) Why lime is used in defecation process? 2
b) Write the role of temperature and pH in juice clarification. 3
7. a) How you can differentiate sugar juice and sugar syrup. 2
b) Why ageing and blending are necessary in rum production. 4
c) What is azeotropic mixture? Is it possible to separate mixture components of azeotropic mixture by distillation? Discuss your opinion. 4
8. a) Enlist the byproducts of sugar industries. 2
b) What types of climate and soil conditions are favorable for good quality sugarcane? 3
c) How you can force and lengthen maturity of sugarcane? 2
d) What percentages of fiber and cane juice are present in sugarcane? Where we can apply fiber of sugarcane? 3
9. a) What percentage of lime is used in juice clarification? 2
b) Why crystallization of sucrose is necessary? 2
c) Briefly discuss curing and refining of sugar. 6
10. a) Discuss the methods of testing of sugar. 3
b) Write a short note on "Crystallizer and Graining point". 6
c) What is commercial cane sugar? 1

Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination 2021
Subject: Fermentation and Beverage Technology (Theory)
Course Code: FBT-302 (T)

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any four questions from each section, where 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

Section-A

1. a) Write the common pitfalls of fermentation. 2
b) Why hops are used in beer though it has bitter taste. 2
c) Enlist two vitamins name as fermentation based commercial products with associated microorganisms. 1
2. a) Discuss in brief the major components of a fermenter. What are the factors that should be considered in designing various fermenters? 6
b) "Chemostatic" or "Turbidostatic" operation is used to maintain the steady-state condition in a continuous stirred tank fermenter- Explain the statement. 4
3. a) Draw a figure of an ideal fermenter. 2
b) Classify the fermenters on the basis of size, growth system, mechanically stirred and configuration or mode of operation. 4
c) Write down the working features and purposes of baffles and sparger in fermenter. 4
4. a) Describe the different methods of operations of cleaning and sterilization of a fermenter. 6
b) Brewer's yeast is grown continuously in a fermenter with an operating volume of 12 m³. The residence time is 20 h and the yeast has a doubling time of 3.2 h. A 2% inoculum, which contains 5% yeast cells, is mixed with the substrate. Calculate the mass of yeast harvested from the fermenter per hour. (Assume that the density of the broth is 1010 kg/m³). 4
5. a) Categorize eight types of non-alcoholic fermented foods on the basis of substrates. 2
b) Draw a flowchart mentioning the stages in the recovery of products from harvested fermented broth. 3
c) Draw a technological flow sheet of wine processing. 3
d) Write down the basic effects of fermentation on foods. 2

Section-B

6. a) Make a chart mentioning the types of fermented foods on the basis of the use of microorganisms. 2
b) Draw a table for fermented milk including substrates name and country of origin. 3
7. a) Mention the history of cheese. 2
b) Why cheese is popular for high food and nutritive value? 3
c) Draw a flowchart for manufacturing of white cheese. 3
d) How color of butter varies from yellowish white to deep yellow? 2
8. a) Give an overview of the steps involved in the alcohol manufacturing process. 6
b) Draw the flow chart of the brewing process of beer. Why fermented cereal beverages are brewed with hops? 4
9. a) Differentiate between butter and cheese. When does the spoilage of butter occur? 4
b) What do you mean by A3 or 3A connotation for fermented foods? Categorize the fermented foods on the basis of substrates. 4
c) What kinds of protocols should be followed for maintenance containment? 2
10. a) Mention the health effects of sugar-sweetened soft drinks. 2
b) Describe the benefits of caffeine in soft drinks. 2
c) Explain about the sweetening agents used in soft drinks. 2
d) What kinds of characteristics should be maintained for water in soft drinks? 2
e) Draw a manufacturing flowchart for soft drinks. 2

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination 2021
Subject: Food Safety and Hygiene (Theory)
Course Code: FSH-302 (T)

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any four questions from each section, where 1 and 6 are compulsory. Use separate answer script for each section. Split answers are strongly discouraged.)

Section-A

1. a) What is food safety? Reunite the ways to prevent cross contamination. 3
b) Rewrite the ways chemicals can do harm in human body. 2
2. a) Define workplace along with duties of employer and employees to ensure safe workplace. 3
b) List down the common hazards in a workplace along with the documentation to identify in the workplace. 4
c) How to report an accident in a workplace? List down the details those should be included in the reporting of accident. 3
3. a) How do you keep temperature control for safety food? 5
b) Briefly describe the steps of effective cleaning. What is pest control in food? 5
4. a) What is HACCP? Discuss about Identification of Hazards in a food environment. 5
b) Recall the flow diagram of critical control point recognition. 5
5. a) What is risk assessment? Write down its importance along with its goal. 4
b) How to conduct risk assessment in a workplace? 4
c) Mention definitions for severity of harm. 2

Section-B

6. a) What do you understand by the term critical limit? 1
b) Write down the difference between critical control point and control point. 2
c) How Codex Alimentarius does helps to ensure food safety? 2
7. a) What is food hygiene? List down the impact of poor hygiene in food industry. 4
b) Mention high risk groups for food poisoning along with the symptoms of food poisoning. 4
c) How to do a food poisoning complaints and what actions need to be taken upon complaints? 2
8. a) List down the actions needed to be taken during preparing and storing of food to avoid food poisoning. 6
b) Discuss about the protective work wear that should be worn during food preparation. 4
9. a) Why do you need a documented food safety management system? What is ISO 22000? Describe the key elements? 5
b) Write down the most common types of work related accidents. Discuss the factors that can affect health and safety. 5
10. Write a short note on the following : 10
 - i) Data coding.
 - ii) High Risk Food.
 - iii) PPE
 - iv) Food allergens