

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Food Packaging (Theory)
Course Code: FPK-302

Full Marks: 70

Time: 3 hours

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

Section-A

1. Write down the principles of Food Packaging. 5
2. a) What are the risks of Food Packaging? 3
b) Discuss in details different types of Packaging Materials. 7
3. a) Discuss general requirements of Food Packaging. 4
b) Discuss in brief the factors that should be considered in choosing a packaging material. 6
4. a) Why polymers are used increasingly in Food Packaging? What are the production processes of polymers? 3
b) Discuss briefly Injection Molding and Thermoforming process. 7
5. a) Write a short note on environmental friendly packaging. 4
b) Write down the classification of Food Packaging based on Packaging Material. 6

Section-B

6. Mention different functions of a container. 5
7. a) Discuss different types of Packaging Paper. 4
b) Discuss the production process of paper for Food Packaging. 6
8. a) Discuss in details the production process of Tin Plate. 6
b) Explain different types of glass container forming methods. 4
9. Discuss properties of any four of the following materials used in flexible packaging film: 10
a) Polythene, b) Polypropene, c) Aluminum Foil, d) Polyamide or Nylon, e) Polystyrene, f) Polyvinyl Chloride
10. a) Classify Food Packaging based on Packaging Technique. 4
b) Define ISPM15. What is the importance of it for wood processing? 4
c) What types of wood packaging are different from those of ISPM15 standard? 2

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Food Safety and Hygiene (Theory)
Course Code: FSH-302

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 discouraged.)

Section-A

1. a) How does food become hazardous? 2
b) Briefly discuss about the different hazardous substances that are present in food. 3
2. a) What are the causes of food poisoning? 3
b) Which factors are responsible for affecting bacterial growth in food? 4
c) What precaution should be taken before buying food? 3
3. a) Write down the principles of HACCP. 4
b) Mention the application of HACCP in a food industry. 2
c) What are the "Critical Control Points (CCP)" that should be monitored in a meat and poultry industry? 4
4. a) Describe the documentation of food safety systems with six simple steps. 6
b) Mention the main causes of accidents in the work place of food industry. 4
5. a) What is a hazard? 2
b) Give some examples of hazards? 2
c) Does exposure to hazards in the work place always cause injury, illness or other adverse health effects? 3
d) How can the hazards be identified? 3

Section-B

6. a) Draw the basic risk management system chart. 5
7. a) Describe the chemical preservation method of food. 4
b) State the general chemical safety guidance in brief. 3
c) What are the benefits for controlling pests in a food industry? 3
8. a) When hand washing of food handler should be carried out? 4
b) What precaution should be taken during chemical storage? 4
c) What do you mean by PPE? 2
9. a) What is risk? 2
b) How do you assess a risk within an industry? 4
c) What is the greatest threat to food safety in perspective to Bangladesh? 4
10. Write short notes on: 10
a) Correct storage of food stuffs.
b) Food pests.

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Food Trade and Laws (Theory)
Course Code: FTL-302

Full Marks: 35

Time: 2 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 discouraged.)

SECTION: A

1. Define management system. 2
2. Note down the relation between Eco-labeling and trade. 5
3. "Political violence influences the development of Food Laws and Regulations"- explain. 5
4. Briefly describe "Plan-Do-Check-Act" in process improvement. 5
5. Define trade Facilitation. How do you construct trade development strategy? 5

SECTION: B

6. Illustrate the institutional functions of BSTI. 3
7. What are the central barriers for international trade? 5
8. How do international trade laws address domestic support? 5
9. What type of risks would be defeated during international trade? 5
10. What is ISO? Write about its roles for implementing big business and how does it help the government of a country? 5

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Fermentation and Beverage Technology (Theory)
Course Code: FBT-302

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 discouraged.)

Section-A

1. a) Define fermentation. What are the benefits of fermentation? 3
b) Write the name of five species of fungus which are directly involved in fermentation process. 2
2. a) What is the basic difference between "Soft drinks" and "hard drinks"? 3
b) Describe the manufacturing procedure of soft drinks. 7
3. a) What types of artificial sweetener used in soft drinks? 3
b) How can you maintain the quality of water used in soft drinks? 3
c) Mention the different types of carbonated drinks and also the effects of caffeine benefits. 4
4. a) What is yield co-efficient? Write down the basic function of fermenters. 5
b) What are primary and secondary metabolites? What are the differences between primary and secondary metabolites? 5
5. a) With a flow chart describe the manufacturing of beer. 8
b) Classify beverage. 2

Section-B

6. a) Draw a generalized, schematic representation of a fermentation process? 4
b) What is carbonated water? 1
7. a) What do you mean by unfermented fruit beverage? Briefly describe the processing of unfermented fruit beverage. 5
b) Define cordial and squash. Describe the manufacturing process of Champaign. 5
8. a) Mention some fermentation products, their organisms and uses. 3
b) Why fermentation is necessary for food processing? 2
c) Define batch and continuous fermentation process. 3
d) Discuss the chemistry of fermentation. 2
9. a) Draw an ideal fermenter. 3
b) Describe the various components of an ideal fermenter with their purposes. 7
10. Write short notes on: 10
a) Fluidized bed bioreactor
b) Body construction of an ideal fermenter

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Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Technology of Food preservation (Theory)
Course Code: TFP-302

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 discouraged.)

SECTION: A

1. Systematically illustrate the texture profile analysis curve of a food product when applied cyclic force. 5
2. a) Describe briefly schematic diagram of simple ammonia refrigeration system. 4
b) Enumerate in brief the effect of cold storage on quality of foods. 4
c) Make a list of fumigants used on grain & grain products. 2
3. a) Narrate the principles of chemical food preservation and give the function of chemical additives in foods. 5
b) Differentiate between food additives and food preservatives. 2
c) Mention the regulations for using additives in foods. 3
4. a) Define visco-elasticity of food. Develop an expression for stress by Maxwell Model. 4
b) Enumerate in brief the flow properties of powder food. 2
c) A dry food product with bulk density of $40 \text{ lb}_m/\text{ft}^3$ is stored in a large storage container and is removed by gravity through a 4 in. diameter opening in the bottom of the container. The test for angle of repose gave a mound of product with 5 in. diameter and 4 in. height. Compute the rate at which the product will be released from the container when discharge co-efficient is 0.65. 4
5. Write short notes on: 2.5×4=10
a) Spray drying, b) Chilling injury, c) Freezing curve and d) BET equation

SECTION-B

6. Define food preservation. Do you think food processing and food preservation are the same? Put arguments in favor of your answer. 5
7. a) Indicate the quality characteristics desired for fruits and vegetables intended for processing. 5
b) Mention the various physical and chemical methods used for evaluation of textural or kinesthetic properties of foods. 5
8. a) Define rheology. Write down the factors that influence the rheological properties of foods. 3
b) Develop the relationship between shear stress and pressure required to force a fluid through a capillary tube. 4
c) Evaluate the generalized Reynolds number for apricot puree flowing through a pipe with a 2-in diameter at a mean velocity of 4ft/sec. The product properties: $m=250 \text{ dyne}\cdot\text{sec}^n / \text{cm}^2$, $n=0.5$ and $\rho=70 \text{ lb}_m/\text{ft}^3$. 3
9. a) Describe briefly the drum drying process with figure. Justify " Freeze drying process is superior to other conventional drying methods ". 5
b) A drum dryer is designed for drying of a product from an initial solids content of 15% to a moisture content of 5% (db). An overall heat transfer co-efficient (U) of 500 BTU/hr.ft².°F is being estimated for the product. An average temperature difference between the roller surface and the product of 200°F will be used for design purposes. Design a drum dryer required to provide a feed rate 600 lb_m feed/hr. 5
10. a) Estimate total refrigeration required to freeze foods and stored at cold storage for several months. 7
b) Compare different methods of food preservation. 3

Chittagong Veterinary and Animal Sciences University

Faculty of Food Science and Technology

BFST 3rd Year 2nd Semester Final Examination, 2013

Subject: Dairy Product Technology (Theory)

Course Code: DPT 302

Full Marks: 70

Time: 3 Hours

(Figures in the right margin indicate full marks. Answer **Three (3)** questions from each section where question 1 and 4 are compulsory. Use separate answer scripts for each section. **Split answer is discouraged**)

Section A

1. a) State the concept of Dairy Microbiology with its scope. 3
b) Classify dairy products on the basis of taste. 3
c) State the principles of preparation of indigenous dairy sweetmeats of Bangladesh and name them. 5
2. a) State the common mesophilic starters used in preparation of yoghurt in Afro-Asian countries. Describe with their types. 6
b) What are the common defects occurred in yoghurt and why? 3
c) State the precautionary measures to prevent those defects. 3
3. a) What do you mean by cultured milk products? 2
b) State the principles of preparing cultured milk products with examples. 4
c) Describe different procedures for preparing buttermilk showing flow diagram. 6
4. Write short notes (any four) 4x3=12
a) Uses of cream; b) Shelf life of cream yoghurt, ghee & rasogolla; c) Kefir;
d) Two T, Time and temperature in dairy product preparation; e) Butter manufacture; f) Composition of yoghurt; and g) Defects of ice cream.

Section B

5. a) What do you mean by Ice Cream? Why is ice cream "glamorous girl" in the dairy world? 3
b) State the composition of dairy ice cream. Name the common ingredients used in the preparation of dairy and non-dairy ice cream. 3
c) State the procedures of factory manufacture of dairy ice cream with an elaboration of freezing process. 5
6. a) Define cheese. Why is cheese called "milk meat"? 3
b) Classify cheese on the basis of moisture content, use of cultures and freshness. 3
c) State the procedure of preparing cheddar cheese with explanation of cheddaring. 6
7. a) State the concepts of Kulfi and Motka Kulfi. 2
b) How do you like to differ kulfi from ice cream? Name the common ingredients used in preparation of Motka kulfi. 3
c) Explain the different procedures of preparing kulfi. 7
8. Write short notes (any three) 3x4=12
a) Kumis; b) Defects of powder milk; c) Preparation of condensed milk;
d) Stability of evaporated milk; e) Granulation of ghee; and f) Flavours in dairy products

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Tea, Coffee, Cocoa and Spices Technology (Theory)
Course Code: TCS-302

Full Marks: 55

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 discouraged.)

SECTION: A

1. Define crop management and nursery management. How tea is propagated? 4
2. a. What is mulching? How mulching is done in young tea and why shade trees are essential for tea plantation? 4
b. Define T.F and T.R and what are their contributions in tea colour, liquor, flavour and texture. 2
c. What are the composition of dry leaf when it is well withered and correctly manufactured? 2
3. a. Illustrate the location of polyphenol and enzyme in a cell of tea leaf. 2
b. Discuss the stages of fermentation with illustration. 2
c. What are the functions of EGCG? How can you separate caffeine by using CO₂? 4
4. a. Describe the manufacturing process of orthodox tea. 3
b. Which term is appropriate for tea fermentation or oxidation and why? 2
c. How withering maintains the quality of tea? State the equation of withering percentage with an example. 3
5. a. Define recovery percentage and leaf conditioning. Describe the biochemical changes that occur during fermentation. 4
b. What type of dryer is used in tea processing? Draw a schematic figure of a tea dryer. 4

SECTION-B

6. a. How can you differentiate spice from herbs? Sketch and label the crucial portion in a typical structure of a coffee bean. 3
7. a. Distinguish between grading and sorting. Write down the grades of Bangladeshi tea. 3
b. Show diagrammatic figure of a tea chest and explain the terms used in describing the infused leaf during tea tasting. 5
8. a. Give an over view of coffee plant and state its environmental demands. 2
b. How coffee cherry is processed by fermentation? What are the adverse effects of caffeine. 3
c. Enumerate the commercially cultivated spices of coffee. How coffee berry is harvested? 3
9. a. Define cocoa and cocoa butter. Describe the manufacturing process of chocolate. 4
b. Write short notes on the following terms: Imitation chocolate, Deodorization of cocoa butter and Pastel coating. 4
10. a. What kind of quality should be maintained as emergence for spices? 3
b. Define active plant constituents. Enumerate the major colour compounds found in herbs and spices. 3
c. What changes occur during fermentation of cocoa beans? 2

Chittagong Veterinary and Animal Sciences University
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BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Applied Dietetics (Theory)
Course Code: APD-302

Full Marks: 55

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 script for each section. Split answer is discouraged.)

Section-A

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|----|---|---|
| 1. | a) Define Therapeutic diet. | 2 |
| | b) Mention the purposes of therapeutic diet. | 2 |
| | c) Give the classification of therapeutic diet. | 3 |
| 2. | a) What are the factors should be considered in preparing a diet chart? | 5 |
| | b) What is balanced diet? | 2 |
| | c) What are basic and modified food groups? | 2 |
| | d) What is the difference between 'Ascites' and 'Edema'? | 1 |
| 3. | a) What is weaning? Why is it important? | 3 |
| | b) Give the guideline for complementary feeding of infants. | 3 |
| | c) Tabulate the dietary management for infants from the age of weaning. | 4 |
| 4. | a) What do you know about Enteral Nutrition and Parenteral Nutrition? | 3 |
| | b) Describe the nutritional composition of Total Parenteral Nutrition (TPN) for a post-operative patient. | 4 |
| | c) What should be considered for the appropriate diet therapy of liver cirrhosis? | 3 |

Section-B

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|----|--|---|
| 5. | a) Define food exchange list. | 2 |
| | b) Mention the uses of food exchange list in diet planning. | 2 |
| | c) What do you know by 'Dietary Approach to Stop Hypertension (DASH)'? Write down the components of DASH diet for hypertensive patient. | 4 |
| 6. | a) Prepare a diet chart for a patient suffering from hyperlipidemia with a maximum intake of cholesterol is upto 300mg/day. Total energy requirement should be ~2000 kcal /day. | 4 |
| | b) Make a list of cholesterol rich foods. | 2 |
| | c) State the dietary guidelines for a patient suffering from cardiovascular diseases. | 4 |
| 7. | a) Arrange the food mentioned below according to 'allow and restriction' for a non-insulin dependent diabetic patient-
Bread, honey, apple, leafy vegetable, pulse, sucrose, papaya and ripe mango. | 2 |
| | b) Prepare a diet chart for a lactating mother where her height is 156 cm, weight is 56 kg and her activity level is light. | 5 |
| | c) What are the rationales of taking excess amount of protein and energy during pregnancy period? | 3 |
| 8. | a) What do you mean by meal planning? | 2 |
| | b) Briefly state the importance of meal planning. | 4 |
| | c) Write down the general principles of dietary management for a patient suffering from renal failure. | 4 |

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd Year 2nd Semester Final Examination, 2013
Subject: Technology of Sugar and Sugar Products (Theory)
Course Code: STH-302

Full Marks: 70

Time: 3 Hours

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

Section: A

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|----|---|---|
| 1. | What is Invert Sugar? Discuss different uses of sugar in human life. | 5 |
| 2. | a) What are the factors that should be considered before chemical treatment of juice? | 3 |
| | b) Discuss in details the Carbonation process for clarification of cane juice. | 7 |
| 3. | a) Write down the composition of raw sugar. | 2 |
| | b) Discuss the process of refining of raw sugar to produce 99% cane sugar. | 8 |
| 4. | a) What is the principle of Vacuum Evaporation | 4 |
| | b) Discuss industrially different uses of Vacuum evaporation. | 6 |
| 5. | a) Define corrosion. Explain ways to be used for the removal of Dissolve Oxygen. | 5 |
| | b) Under which condition does Caustic Embattlement occur? How is to prevent it? | 5 |

Section: B

- | | | |
|-----|--|---|
| 6. | Draw the ring structure of D-Fructose, Galactose, Maltose. | 5 |
| 7. | a) What is syrup? How does Sucrose loss occur during sugar manufacturing process? | 4 |
| | b) Discuss briefly about clarification process of syrup. | 6 |
| 8. | a) Is brown sugar better than white? Discuss according to nutritional values of Brown & White sugar. | 4 |
| | b) Write down the composition of Brown and White Sugar. | 6 |
| 9. | a) Discuss different waste water sources in sugar industry. | 2 |
| | b) What are the waste water parameters? | 3 |
| | c) What is the cause of scale formation in Boiler? How is to prevent it? | 5 |
| 10. | a) Write down the principle of grain formation and Discuss different types of graining of sugar. | 5 |
| | b) Mention composition of Masecutie and its Molasses. | 5 |