

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014
Subject: Food Trade and Law (Theory)
Course Code: FTL-302

Full Marks: 35

Time: 2 hours

(Figures in the right margin indicate full marks. Answer three (3) questions from each section where question one (1) is compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. Define food trade and laws. Write down the objectives of food trade and laws. 5
2. Briefly discuss the reasons, merits and demerits of intentional trade. 6
3. Which organizations were attached with BSTI and how BSTI carry out their task in our country? 6
4. What are the barriers of international trade? 6

Section-B

5. What do you know about trade facilitation? Describe the trade development strategy. 6
6. Define ISO and elaborate the eight quality management principles of ISO series. 6
7. What do you know about the Quality Management System (QMS)? Briefly describe the basic principles of QMS. 6
8. Write a brief note on 'Globalization'. 6

(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 not allowed.)

Section-A

1. a) Define viscosity and consistency. Outline the various methods for measurement of viscosity and consistency. 5
2. a) Write down the principle of canning. 3
b) Classify food on the basis of p^H . 2
c) Mention the advantages of canning over other methods of preservation. 3
d) Mention the way of heat transfer in canned food? 2
3. a) Describe briefly the process associated with fruit ripening. 4
b) Make a list of recommended storage temperature, relative humidities, approximate storage life and average freezing point of fruits. 3
c) Find out the factors to be considered for packaging of foods. 3
4. a) Which drying process is best for food products when having high initial moisture contents? 7
b) Specify the factors to be considered during chilling storage. 3
5. a) Find out the benefits of quick freezing over slow freezing. 3
b) How to compute the total requirements to freeze foods in cold storage for several months? 7

Section-B

6. a) What is Food preservation? What are the advantages of chemical additives in food processing? 5
7. a) What is rheology? What are the importances of rheology? 2
b) Compare the shear stress and rate of shear relationship of newtonian and non newtonian fluid with figure and equations. 3
c) Compare the arithmetic, surface and volume surface mean diameters for particles in a dry food product with the following distribution of sizes: 5

Number	Size in micron
1	40
4	35
22	23
19	17
9	8
8. a) What is food quality? Explain in brief the various appearances, textural and flavours factors of food. 6
b) Give the classification of defects of foods with examples. 4
9. a) Indicate the benefits of freeze drying over other conventional drying. 3
b) Give a flow sheet for drying of fruits and vegetables. 3
c) What types of spoilage might be occurred in dried foods and how to prevent them? 4
10. a) Write short notes on the following terms: 10
 (a) Internal moisture food (IMF),
 (b) Food Irradiation,
 (c) Texture profile,
 (d) Freezing Curve.

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014
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 1 & 6 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. a) What is risk? What is an adverse health effect? 3
b) Why risk assessment is important? 2
2. a) Briefly discuss the physical, chemical and biological hazards of food. 4
b) When hand washing of food handler should be carried out? 4
c) What are the sources of bacteria in food? 2
3. a) What is risk assessment? 2
b) How do you do a risk assessment? 4
c) How do you rank or prioritize the risk? 2
d) What are the methods of hazard control? 2
4. a) Define High-risk food. Give classification of High-risk food with appropriate examples. 3
b) Mention the significance of good hygiene practices. 3
c) Explain the principle of cleaning. Clarify the functions of disinfectant, detergent and sanitization in a food industry. 4
5. Write short notes on: 10
a) Food borne diseases
b) Cross contamination

Section-B

6. a) What are the causes of food poisoning? 3
b) What are the responsibilities of a food handler during food preparation? 2
7. a) What is HACCP? 1
b) Mention the stages of the HACCP process. 3
c) What do you mean by "Establishment of CCP limits"? 3
d) List the documentations are required for HACCP? 3
8. a) Write down the causes of accidents in a workplace and also find out their preventive action. 5
b) How to make documents of food safety system? 5
9. a) What is data coding? 2
b) Describe the high temperature and low temperature methods for food preservation. 5
c) Write the name of common food pests. What are the key measures for control of pests? 3
10. Write short notes on: 10
a) Preservation method for maintaining the self-life of food
b) Good Manufacturing Practice (GMP)

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014
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 1 & 6 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. a) Which term is appropriate for tea fermentation or oxidation and why? 2
b) What is mulching? How mulching is done in young tea? 2
2. a) Give the composition of green tea leaf according to position. 2
b) Briefly describe the leaf count method and ballometer count method in sense of quality analysis of green leaf. 4
c) What are the biochemical components of tea? Classify tea catechin. 2
3. a) Define Organic tea. Narrate the manufacturing process of black tea. 4
b) What do you mean by decaffeination of tea? Shortly discuss the different methods of decaffeination. 4
4. a) Illustrate the location of polyphenol and enzyme in a cell of tea leaf. 3
b) State the characteristics of infused leaf and terms describing the tea liquor. 5
5. a) Write down the composition of *coffea canephora* bean after roasting. 3
b) How coffee cherry is processed by fermentation? What are the adverse effects of caffeine? 5

Section-B

6. a) What type of dryer is used in tea processing? Draw a schematic figure of a tea dryer. 3
7. a) Distinguish between spice and herbs. What do you mean by herbal tea? 3
b) Show the diagrammatic figure of a tea chest. Sketch and level the crucial portion in a typical structure of a coffee bean. 5
8. a) How coffee berry is harvested? Describe the manufacturing process of cocoa powder. 5
b) Write short notes on the following terms: i) Defects of chocolate, 3
ii) Composition of chocolate,
iii) EGCG.
9. a) What is bulk density?" It is considered as a parameter in quality standard specifications for spice"- explain it briefly. 3
b) Enumerate the major flavour compounds found in herb and spices. What kind of quality should be maintained as emergence for spices? 5
10. a) Mention the general functions of spice and state the role of spices in cookery. 3
b) Give an overview of tea plant and state its environmental demand. What do you mean by indicator plants? -explain it in sense of tea cultivation. 5

Chittagong Veterinary and Animal Sciences University

Faculty of Food Science and Technology

BFST 3rd year 2nd Semester Final Examination, 2014.

Subject: Dairy Products 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 & 5 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. a) What is Dairy Technology? 2
b) Write true (T) or false (F) against the following 9 × 1 = 9
i) Evaporate milk does not contain added sugar.
ii) Sorbet does not contain milk.
iii) Cultured butter milk contains thermophilic starters.
iv) Kulfi may not have added colour.
v) There is no difference between ghee and butter oil.
vi) There is no overrun in butter.
vii) Fruit syrup can also be used as sweetener in flavored milk.
viii) Vegetable candy can also be made using butter fat coating.
ix) Kumis is prepared from "goat milk".
2. a) What is cheese? State the composition of cheddar and cottage cheese. 3
b) Define cheddaring. Briefly state the steps involved in cheddaring during preparation of cheddar cheese. 5
c) Write down the procedure of rennet preparation from animal source. 4
3. a) Differentiate the kulfi, milk ice and lilies. 3
b) How will you prepare kulfi and milk ice for long term use? 4
c) Mention the transportation and marketing system of different types of dairy products in Bangladesh. 5
4. a) Differentiate between condensed and evaporated milk. 3
b) How will you prepare condensed milk commercially? 6
c) Write the stability of evaporated milk. 3

Section-B

5. a) Why ice-cream is known as "dream girl"? 2
b) Classify ice cream. Name the common ingredients with their functions used in industrial manufacture of ice cream. 5
c) State the steps involved in freezing ice-cream. 4
6. a) What do you mean by churning? Write the churning procedure for manufacturing butter. 5
b) What are the changes that are occurred in cream during churning? 2
c) How can you prepare cultured butter milk from churning cream? 5
7. a) State the principles of separation of cream by Gravitational Method. 3
b) State different types of cream with their fat percentages. 3
c) Discuss different methods of cream separation from milk. 6
8. Write short notes on (Any four) 4 × 3 = 12
a) Acidophilus milk b) Reconstituted milk c) Starter culture d) Defects of yoghurt
e) Stabilizers

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014.
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 & 6 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. a) Write the differences between glucose and fructose. 3
b) Draw the ring structure of sucrose. 2
2. a) Specifically write the crystal growth mechanism. 2
b) Why super-saturation is required for crystallization? 2
c) How losses of sugar occurred in sugar factories? 3
d) Write the composition of raw juice after crushing. 3
3. a) Briefly discuss the different categories of sugar functional properties. 4
b) What do you mean by reducing sugar? 2
c) Write the applications of inverted sugar. 2
d) Write the principle of multiple effect evaporator. Why it is used instead of single effect evaporator. 2
4. a) What is meant by clarification of sugarcane juice? 2
b) Write the chemical reactions occurring in juice clarification. 3
c) What is the optimal p^H of clarified juice? 1
d) Write the advantages and disadvantages of sulphitation. 4
5. a) Discuss the factors which influence extraction of juice. 3
b) Discuss in details the sulphitation process for clarification of cane juice. 7

Section-B

6. a) What are sugars? 2
b) How does brown sugar differ from white sugar? 2
c) Do sugars cause diabetes? 1
7. a) Discuss the pollution problems in sugar industries. 3
b) How water pollution problems can be minimized in sugar industries? 3
c) Why pumps and boilers are used in sugar industries? What are the problems may occur if boiler feed water is not treated properly? 4
8. a) Explain the term massecuite. 2
b) Write the rheological properties of massecuite. 5
c) What are the objectives of pan house? 3
9. a) Why lime is used in defecation process? Write the reactions involved in defecation process. 4
b) Why vacuum filters and vacuum pans are used in sugar manufacturing process? 3
c) Write the role of temperature and p^H in juice clarification. 3
10. a) Discuss in details about the refining process of sugar industries? 6
b) Write about the by-products of sugar industries. 4

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014
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 1 & 6 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. a) What is fermentation? 1
b) Draw a generalized, schematic representation of a fermentation process? 4
2. a) Draw the flowchart of operation and quality control activities in the manufacturing of beer. 6
b) Mention the quality control activities during the production of soft drinks and caffeine benefits. 4
3. a) Describe the mechanism of vinegar production. 5
b) Classify the beer on the basis of used of culture and alcohol percentage. 2
c) Describe the procedure of estimation of specific gravity of beer. 3
4. a) Mention the types of fermenter. 3
b) Describe the various components of an ideal fermenter with their purposes. 7
5. Write short notes on: 10
a) Body construction of ideal fermenter
b) Manufacturing procedure of white cheese

Section-B

6. a) What are the differences between traditional fermentation and tea fermentation? 3
b) Write the name of four species of bacteria and fungus which are used in fermentation. 2
7. a) Why molasses is preferred for the manufacture of alcohol? 3
b) Describe with flowchart the manufacture of ethyl alcohol from molasses. 7
8. a) Describe the main ingredients of soft drinks. 7
b) What is the basic difference between "Soft drinks" and "Hard drinks"? 3
9. a) Classify fermented foods by types? 3
b) What do you mean by growth kinetics of microorganism? 2
c) Describe the "Air lift fermenter" with a neat figure. 5
10. a) Explain the biochemical and recovery mechanism of citric acid production. 7
b) Write down the industrial uses of butanol and ethanol. 3

Chittagong Veterinary and Animal Sciences University
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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 not allowed.)

Section-A

1. Discuss the spoilage and deterioration of food during packaging. 5
2. a) What are the advantages and disadvantages of using plastics material as food packaging? 4
b) Briefly describe the FDA regulation for food products. 4
c) Classify labeling machines. 2
3. a) What is shelf-life? What are the factors that influence the shelf-life of a food product? 6
b) How can you determine the shelf-life of packaged food product? 4
4. a) Briefly discuss the thermoforming process of food packaging. 6
b) Write short notes on rigid packaging materials. 4
5. a) What is container? Give an account of different types of food storage containers. 4
b) Write down the packaging process of the following food: 6
i) Dehydrated food
ii) Respiring fruits and vegetables
iii) Fresh meat

Section-B

6. Write short notes on "Environment friendly packaging". 5
7. a) Classify different types of pulping process. 2
b) Starting from raw materials describe Kraft process for the production of paper pulp with a flow diagram. 8
8. a) What is aluminium foil? What are the advantages of using aluminium foils? 5
b) What are the advantages and disadvantages of using glass as packaging materials? 5
9. a) What are the purposes of package testing? 4
b) What do you mean by annealing? Describe the production process of single reduced hot dipped tin plate. 6
10. a) Classify papers as packaging materials. 3
b) Write short notes on "Flexible packaging". 3
c) What are the reasons of using fillers, sizing agents and colouring agents during paper making? 4

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014
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 1 & 5 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. a) Define balanced diet. Mention its characteristics. 2
b) Who are dietitians? Explain the role of a dietitian. 2
c) Which factors should be considered in planning and preparing a diet chart? 3
2. a) What are the major nutritional problems in pre-operative condition? 3
b) Describe the rationale for diet therapy in post-operative nutrition. 4
c) What nutrients are considered to be important for person undergoing surgery? 3
3. a) Why the additional amounts of fat and water soluble vitamins are required in pregnancy? 4
b) Explain the factors affecting nutrition and diet of elderly people. 3
c) Who are toddler and pre-schooler? Give an ideal chart of food needs for toddlers. 3
4. a) What do you mean by tube feeding? Explain the characteristics with its advantages and disadvantages of different types of common used tube. 6
b) Define bolus feeding and continuous drip feeding. Describe the procedure of tube feeding. 4

Section-B

5. What are the clinical symptoms of cystic fibrosis? Describe the nutritional needs and goals of diet therapy in case of CF. 8
6. a) What are the functions of kidney? 2
b) Write a brief discussion about the general principles of dietary management in renal diseases. 8
7. a) What do you mean by hypoglycemia? How will you manage the sick days of a patient suffering from diabetes? 4
b) Explain the characteristics of different types of insulin. 3
c) Write a diet prescription for a diabetic child. 3
8. a) What is the clinical identification of metabolic syndrome? 2
b) Describe the nutrient composition of therapeutic lifestyle change (TLC) diet. 3
c) Write a general guideline of dietary management for a patient suffering from hypertension. 5

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 2nd Semester Final Examination, 2014
Subject: Statistics(Theory)
Course Code: STC-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 & 8 are compulsory. Use separate answer script for each section. Split answer is not allowed.)

SECTION-A

1. a) Define statistics. Discuss the main functions and limitation of statistics. 3
 b) What do you mean by variable? Discuss the different types of variables with example. 2
2. a) Define central tendency. What are its objectives? Mention the desirable characteristics of a good measure of location. 4
 b) The following distribution shows the length of Hilsha fish caught on a certain day by a fisherman at a certain point of the Padma.

Class interval (length in cm)	No. of fishes caught
25-30	39
30-35	45
35-40	52
40-45	75
45-50	15
50-55	8
55-60	6

- i. Find average and modal length of fishes for the above data. 2
 - ii. If the fisherman decides to sell 30% of the smallest fishes to local market, compute the highest length of the fish which will be sold in the local market. 2
 - iii. If the fisherman decides to export largest 20% to abroad, find the smallest length of the export fishes. 2
3. a) Discuss the different types of skewness of a distribution with the help of diagrams. 3
 b) Explain the superiority of coefficient of variation over standard deviation. 3
 c) The following prices (in Taka) are given different brands of cakes: 90, 50, 150, 80, 190, 50. Calculate coefficient of variation and skewness. 4
4. a) What is regression analysis? Mention its uses in food sector. Distinguish between correlation coefficient and regression coefficient. 3
 b) You are given age (in year) and body length (in cm) of a sample of 7 fishes all from one species caught in one trawl haul:

Age (in Year):	0.5	1.0	1.5	2.0	3.0	5.0	6.0
Body length(in cm):	14.8	22.6	28.5	33.4	39.9	46.3	53.2

 - i. Obtain correlation co-efficient and coefficient of determination. Also interpret your result. 4
 - ii. Find regression co-efficient of y on x. 2
 - iii. Estimate the body length of a fish which is 4 years old. 1
5. a) What is meant by hypothesis testing? What are the important steps involved in carrying out a test of hypothesis. 5
 b) Define contingency table. A Tobacco company claims that there is no relationship between smoking and lungs ailments. To investigate the claim a random sample of 300 males of 40-50 years are given medical test. The observed sample results are shown below:

	Found lung ailment	No lung ailment	Total
Smokers	75	105	180
Non-smokers	25	95	120
Total	100	200	300

On the basis of the information, can it be concluded that smoking and ailments are independent? Use $\alpha = 0.05$ (Apply, $\chi^2_{0.05,1} = 3.84$, $\chi^2_{0.05,2} = 5.99$, $\chi^2_{0.05,3} = 7.81$) 5