

**Chattogram Veterinary and Animal Sciences University**

**Faculty of Food Science and Technology**

**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination-2020**

**Subject: Applied Dietetics (Theory)**

**Course Code: APD-302**

**Full Marks: 35**

**Time: 2 hours**

(Figures in the right margin indicate full mark. Answer any 3 (Three) questions from each section where question no. One (1) and five (5) are compulsory. Split answer is not allowed.)

**Section-A**

1. Discuss the basic relationships between diet and disease. 3
2. a) Differentiate between diet and balanced diet. 3  
b) Enumerate the factors influence on meal planning. 4
3. a) What is food pyramid? 2  
b) A person of body mass index is 39 free from any chronic disease. Give a dietary modification and exercise pattern for him. 5
4. a) Elaborate the functions of iron during pregnancy. 3  
b) Briefly describe the nutrient requirements during pregnancy. 4

**Section-B**

5. "Good nutrition prior to surgery"- explain. 4
6. a) List the causes of hypertension. 1  
b) Briefly explain the dietary management of hypertension. 6
7. a) Briefly describe the symptoms and dietary management of chronic kidney disease. 4  
b) What can cause unhealthy kidney? Which hormones are produced by the kidney? 3
8. a) List the types of diabetes mellitus. What are the benefits of exercise for a diabetic patient? 3  
b) Define the following terms: 4
  - i. Diabetic coma
  - ii. Oliguria
  - iii. Obesity
  - iv. Food Group

**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination, 2020**  
**Subject: Tea, Coffee, Cocoa and Spices Technology (Theory)**  
**Course Code: TCS-302 (T)**

**Full Marks: 35**

**Time: 2 hours**

(Figures in the right margin indicate full marks. Answer any **four** questions from each section, where question no.1 and 6 are compulsory, Split answer is not allowed)

**Section-A**

1. Which term is appropriate for tea-fermentation or oxidation and why? 3.0
  
2. a) How quality of green leaf can be analyzed? 3  
b) State the concept of biochemistry of oxidation. 2
  
3. a) Define spices and Herbs. 1.5  
b) Demonstrate the medicinal value of ten (10) spices which are commonly used in Bangladesh. 3.5
  
4. a) Describe the manufacturing process of green tea. 3  
b) Why green tea leaves are conditioned prior to rolling? 2
  
5. a) Explain the quality defects of chocolate. 2  
b) Sketch the processing steps for chocolate manufacturing. 3

**Section-B**

6. Sketch and label the crucial portion in a typical structure of a coffee bean. 2
  
7. a) How coffee cherry is harvested? 2  
b) How coffee berry is processed by fermentation? 2  
c) What are the adverse effects of caffeine? 1
  
8. a) "Bulk density is considered as a parameter in quality standard specifications for spice"- explain it briefly. 2  
d) What do you mean by active plant constituents? Enumerate the major flavor and colour compounds in herbs and spices. 3
  
9. a) What do you mean by misbranding and food adulteration? 1  
b) What sort of adulterants is found in tea and spices and how they can be indentified and checked? 4
  
10. a) Differentiate between black tea and green tea. 2  
b) Illustrate the biochemical components of tea with their beneficial effects on Human health. 3

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination 2020**  
**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 answer is strongly discouraged.)

**Section-A**

1. a) Write down the basic reactions of fermentation. 3  
b) List out the types of fermentation. 2
2. a) Demonstrate an Air lift fermenter along with their advantages and disadvantages. 7  
b) Name some important fermentation products with the organism name and their uses. 3
3. a) Define Beverage. What are the classifications of beverages? 4  
b) Describe the basic ingredients used in preparation of soft drinks. 6
4. a) Define inoculum development. Mention some criteria for transfer of inoculum. 4  
b) How can you prepare the bacterial inoculum? Discuss with figure. 6
5. a) What is the basic difference between fermenter and bioreactor? 3  
b) Describe an ideal fermenter mentioning with various components, monitoring and controlling parts. 7

**Section-B**

6. Draw the technological flow sheet of wine processing. 5
7. a) What is cheese? Classify cheese. 3  
b) Enlist the food and nutritive value of cheese. 2  
c) Draw a flow chart for manufacturing procedure for cottage cheese. 5
8. a) Enlist the common raw materials of beer. 3  
b) Describe the manufacturing process of alcohol with flow chart. 7
9. a) What is the basic difference between soft drinks and hard drinks? 3  
b) What do you mean by carbonated beverages? Briefly describe the carbonation method with figure. 7
10. Write a short notes on: (Any two) 10
  - a) Starter culture.
  - b) Sealing, baffles and aeration system of fermenter.
  - c) Chemistry of fermenter.

**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination-2020**  
**Subject: Food Trade and Laws (Theory)**  
**Course Code: FTL-302**

**Full Marks: 35**

**Time: 2 hours**

(Figures in the right margin indicate full mark. Answer any 4 (Four) questions from each section where question no. 1 and six (6) are compulsory. Split answer is not allowed.)

**Section-A**

- |    |    |   |   |
|----|----|---|---|
| 1. | a) | Write some importance of food trade.  | 1 |
|    | b) | Differentiate between international trade and internal trade.   | 2 |
| 2. | a) | Define metrology structure of BSTI (Bangladesh Standards and Testing Institution) activity wing.              | 1 |
|    | b) | How BSTI certification marks wing work? Explain.  | 4 |
| 3. | a) | How Bangladesh Food Safety Authority (BFSA) established? What are the vision and mission of the organization? | 3 |
|    | b) | Demonstrate the technical committee's arrangement in BFSA.  | 2 |
| 4. | a) | Categorize the structure of metrology.  | 2 |
|    | b) | Enlist 6 laboratories in the National Metrology laboratory.   | 1 |
|    | c) | Draw a chart showing the enquiry stage of BSTI.   | 2 |
| 5. | a) | Mention the name of some international trade.   | 1 |
|    | b) | Demonstrate some barriers and their remedies of international trade.  | 4 |

**Section-B**

- |     |    |  |     |
|-----|----|--|-----|
| 6.  |    | Define trade facilitation. List some importance of trade facilitation.                           | 2   |
| 7.  | a) | How World Trade Organization works?  | 3   |
|     | b) | Generalized the laws and regulation to food and food additives in Bangladesh.                    | 2   |
|     |    | <i>Demonstrate the five principles of world trade organization.</i>                              |     |
| 8.  | a) | Briefly describe the standard model of trade according to Paul Krugman-Maurice Obsfeld.          | 3   |
|     | b) | Draw a chart showing trade development strategy.   | 2   |
| 9.  | a) | Briefly describe the ISO-9000 Quality Management principle.                                      | 2.5 |
|     | b) | Draw a flow chart of interactive communication within the food to maintain food safety standard. | 2.5 |
| 10. | a) | Summarize the Food adulteration in Bangladesh according to FDA.                                  | 2.5 |
|     | b) | Generalized the laws and regulation to food and food additives in Bangladesh.                    | 2.5 |

**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination, 2020**  
**Subject: Dairy Products Technology (Theory)**  
**Course Code: DPT-302 (T)**

**Full Marks: 70**

**Time: 3 hours**

(Figures in the right margin indicate full marks. Answer any **Three** questions from each section, where question no.1 and 5 are compulsory, Split answer is not allowed)

**Section-A**

1. a) Define Dairy Products Technology. Classify common dairy products with paradigm 3.0  
b) Discuss the scope of Dairy Products Technology 4.0  
c) State different types of milk and milk quality required for the manufacturing dairy products 4.0
2. a) Define and classify power milk with detail composition 4.0  
b) Discuss the manufacturing process of powder milk by spray drying technique 4.0  
c) Compare the physical and sensory characteristics of drum and spray drying powder milk 4.0
3. a) Differentiate butter from ghee 4.0  
b) Discuss common methods used for the preparation of butter and ghee 4.0  
c) Describe the procedure for detecting adulteration of butter and ghee 4.0
4. a) What is the difference among curd, dahi and yoghurt? 3.0  
b) State the manufacturing steps of probiotic yoghurt 3.0  
c) Enumerate the nutritional and therapeutic properties of probiotic yoghurt 3.0  
d) Discuss the biochemical changes occur during preparation of probiotic dahi 3.0

**Section-B**

5. a) Define flavoured milk , reconstituted milk and toned milk 3.0  
b) State the manufacturing process of flavored milk 4.0  
c) Discuss the merits and demerits of sterilized milk 4.0
6. a) What do you mean by indigenous dairy products ? 2.0  
b) State the manufacturing process of milk-vita Rossomalai 3.0  
c) Discuss the health benefits of Rossomalai 4.0  
d) Give a schematic diagram for Sandesh preparation 3.0
7. a) Classify cream with definition 2.0  
b) State the nutritive value of cream 3.0  
c) Mention the principle of cream separation 3.0  
d) State the factors that affect the richness of cream 4.0
8. Write short note on any four of the following : (3 × 4)-- 12.0  
a) Functional dairy foods b) Overrun in butter c) Skim milk powder d) Storage and preservation of dairy products e) Packaging materials for food products  
f) Consumption pattern of milk and milk products in the different countries of the world

**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination, 2020**  
**Course Title: Statistics (Theory)**  
**Course Code: STC-302 (T)**

**Full Marks: 70**

**Time: 3 hours**

[Figures in the right margin indicate full marks. Answer any 4 (Four) questions from each section. **Question 1(one) and 6 (six) are compulsory.** Use separate answer script for each section. **Split answer is strongly discouraged.**]

**SECTION-A**

1. a) Write the algorithm of statistics. Discuss the importance of statistics in the field of food science and technology. 5
- b) Explain when you will use histogram and frequency polygon. 3
2. a) Define and classify the scale of measurement. Mention the name of variable and scale of the following characteristics. 6
- i) **Temperature** of a room ii) **Age** of broiler iii) Population of a **district** iv) **Economic status** of a family v) **IELTS score** of a student
- b) Explain the construction of a frequency distribution table. 3
3. a) List the difference between arithmetic mean and weighted arithmetic mean. State the properties of arithmetic mean. 6
- b) For two observations  $X_1$  and  $X_2$ , show that  $\sqrt{AM \times HM} = GM$ . 3
4. a) Explain the concept of standard deviation and coefficient of variation. Find the coefficient of variation from the scores of two batsmen in a series of one day international cricket matches. Who is the most consistent player? 6

Player A	78	81	59	78	102
Player B	91	4	35	111	31

- b) List the characteristics of a frequency distribution. Write down the classification of frequency curve. 3
5. a) Define raw moment and corrected moment. Briefly describe the statistical tools used to present the shape of distribution of a data. 6
- b) A new fruit variety contains the ascorbic acid (mg/100g) as 35, 42, 37, and 75. Explain the value 75 is outlier or not. 3

**SECTION B**

6. a) Twenty pairs of values of the variables X and Y led to the following results. Find the correlation coefficient and comment on the result. 5
- $n = 20, \sum X_i = 127, \sum Y_i = 100, \sum X_i^2 = 760, \sum Y_i^2 = 449, \sum X_i Y_i = 500$
- b) How do you measure the linear relationship between two variables? Interpret the three possible values of r: -1, 0, 1. 3
7. a) How do you conduct the test of significance of specified population variance when mean is known? 6
- b) Define level of significance, test statistic, and power of test. 3
8. a) The birth weight of new born babies was collected from underweight, normal weight, and overweight of mother. Was the mean birth weight of babies significantly different regarding the body mass index (BMI) of mother? Which statistical tool can be used and how do you conduct this test of hypothesis? 6
- b) Explain the basic principles of design of experiment. 3
9. a) Write down the normal distribution. How many parameters in it? Write the properties of it. 6
- b) Define marginal probability, conditional probability, and joint probability. 3
10. Short notes - answer any 3 (three): 3\*3=9
- a) Uses of chi-square test and F test
- b) Poisson distribution and its properties
- c) Regression and its properties
- d) Probability range is between 0 and 1
- e) Randomized block design

**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination 2020**  
**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 answer is strongly discouraged.)

**Section-A**

1. a) What do you mean by reducing sugar and inverted sugar? 3  
b) Enlist the criteria of good quality sugarcane. 2
2. a) What is the pH of the juice before clarification? 1  
b) What is clarification of sugarcane juice? 2  
c) Discuss in details about the carbonation process for clarification of cane juice. 7
3. a) Why optimum range  $P_2O_5$  is required for defecation process? 3  
b) Draw the flow diagram of defecation process with mentioning key conditions for sugar manufacture. 7
4. a) What is evaporation? Discuss about the principle of vacuum evaporation. 5  
b) Where you should use single effect evaporator and multi effect evaporator? 3  
c) What do you mean by steam economy? 2
5. a) Why supersaturation is required for crystallization? 3  
b) Write the mechanism of crystal growth formation. 3  
c) Write the reactions involved in defecation process. 4

**Section-B**

6. a) How is scale formation related with sugar? 2  
b) What are 3 problems sugar can cause in the body? 3
7. a) Draw the flow diagram of ethanol manufacturing process. 4  
b) Discuss the role of distillation and dilution for ethanol production. 4  
c) Write the composition of sugarcane. 2
8. a) Draw the chemical structure of the following: 3  
i) D-Glucose  
ii) Sucrose  
iii) Lactose  
b) What is EIA? Discuss about the EIA steps and environmental monitoring. 4  
c) Why rotary vacuum filters are used in sugar factories. 3
9. a) Write the byproducts with their uses that we get in sugar industry. 4  
b) Discuss the present problems and future prospects of sugar industry in Bangladesh. 4  
c) How would you grade the sugar? 2
10. a) Why pre-heating of sugarcane juice is required? Describe the role of heat in juice liming process. 3  
b) What are the water quality parameters that are considered for sugar industries? 4  
How water is contaminated by sugar industries waste?  
c) How can you minimize water pollution problems? 3

**Chattogram Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination, 2020**  
**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 question no.1 and 6 are compulsory, Split answer is not allowed)

**Section-A**

1. Reunite principal of cleaning and the functions of disinfectant, detergent and sanitization. 5
2. a) How will you manage the chemicals those are found in a typical food preparation area? 4  
b) Recall general chemical safety guideline. 3  
c) Discuss the role of temperature regarding food safety. 3
3. a) Describe general guidelines for food storage. 4  
b) Mention the dangers of food borne illness. Write the causes of food borne illness. 6
4. a) Briefly describe the seven principles of HACCP. 6  
b) Discuss the guidelines for applications of HACCP principles. 4
5. a) Define work place along with duties of employees and employees to ensure safe work place. 3  
b) Why is it important to review and monitor risk assessment? 3  
c) How do you know if the hazard is serious? 4

**Section-B**

6. a) What is food poisoning? What are the causes of food poisoning? 3  
b) What do you mean by good working practices? 2
7. a) List down the components of hand washing facility in food industry and also discuss importance of washing hands. 4  
b) Discuss hazard associated with pests and how to control them. 6
8. a) What is adverse health effect? Will expose to hazards in the work place always cause injury, illness on other adverse health effect? 5  
b) How do you rank on prioritize the risks? Define different risk level. 5
9. a) Why should food business have a documented food safety management system? Explain briefly documented food safety management system. 7  
b) What is near miss? Write down the definitions of likelihood of harm. 3
10. Write a short note on the following 10
  - a) Cross contamination.
  - b) First aid kit
  - c) RIDDOR
  - d) Reheating and Defrosting



**Chittagong Veterinary and Animal Sciences University**  
**Faculty of Food Science and Technology**  
**BFST 3<sup>rd</sup> year 2<sup>nd</sup> Semester Final Examination 2020**  
**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 answer is strongly discouraged.)

**Section-A**

1. a) Define food packaging. 2  
b) Write down the chronological history of plastic as packaging material. 3
2. a) What is the best method to study the antimicrobial activity of the bio-polymeric food packaging films? 5  
b) What are the challenges associated with intelligent food packaging for commercial applications? 5
3. a) What types of properties are considered during choosing packaging materials? Describe with examples. 5  
b) Describe extrusion molding with a neat diagram. 5
4. a) Classify paper as a packaging material. 3  
b) Write down the advantages and disadvantages of using paper as a packaging material. 3  
c) Describe flow process (press and blow) for the production of glass packaging. 4
5. a) What do you mean by flexible packaging film? 1  
b) Evaluate plastic as a packaging material. 3  
c) Write down the properties of the following as flexible packaging materials: 6  
    i) Polypropylene  
    ii) Aluminium foil  
    iii) Cellulose acetate

**Section-B**

6. Write a short note on "Thermoforming process". 5
7. a) Why are alcoholic beverages stored in glass bottle instead of convenient plastic bottle? 4  
b) Write down the packaging process of the following food items: 6  
    i) Sugar confectionary.  
    ii) Pasteurized products.  
    iii) Dehydrated foods.
8. a) What is aluminium foil? What are the advantages of using aluminium foil? 4  
b) Describe the Kraft process for manufacturing paper with a flow diagram. 6
9. a) What is MAP? 2  
b) What do you mean by active packaging? Describe the systems of active packaging with examples. 4  
c) Describe the production process of single reduced tin plate. 4
10. Write a short note on the following: (Any two) 10  
a) Bio-polymer based food grade packaging.  
b) Active packaging vs conventional packaging.  
c) Heavy metals in paper based food packaging materials.