

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination, 2015
Subject: Food Plants Design, Layout and Management (Theory)
Course Code: PDL-202

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any 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) Briefly explain effective planning and plant design. Show with an example. How capacity utilization of a food plant affects cost of production. 5
2. a) Write down the criteria of an ideal food plant layout. 4
 b) What are the different types of floors? Describe metal plate floors and paver floors. 4
 c) Differentiate between cleaning and disinfection. 2
3. a) What do you mean by secondary treatment of food wastes? Explain trickling filters. 5
 b) A processor has 6 positions to fill and has 6 people available for these jobs. The six men are given an opportunity to work at each job and from this he obtains information in terms of minutes of Labour required to accomplish each job in the form of an effectiveness matrix as shown below: 5

	A	B	C	D	E	F
1	21	27	25	30	29	36
2	19	30	20	27	25	32
3	14	20	15	25	22	20
4	35	32	30	35	28	40
5	11	15	22	26	20	17
6	28	38	36	27	30	42

Find out the least possible time to perform the jobs.

4. a) What do you mean by Break even Analysis (BEA)? Why is it important for industrial operations? 4
 b) Give a brief outline of colour coding. 4
 c) What are the rules should be followed for personal health and cleanliness of Employee. 2
5. a) Illustrate the objectives of material handling in a food industry. 4
 b) Describe a screw conveyor and Develop equation for determining capacity. 4
 c) Differentiate between COP and CIP of wet cleaning process. 2

Section-B

6. a) Write down the GMP's in Food Plants. 5
7. a) Name the terminal disinfection methods. Illustrate the screening and Sedimentation method for removing suspended matter in water. 6
 b) Define Super Chlorination. Describe Zeolite process for softening of water. 4
8. a) Give a brief outline of Food Service system. 5
 b) Explain the following term: (i) Company (ii) Time value of money (iii) Labour Law. 5
9. a) What is meant by planning? Describe long term plant with an example. 4
 b) If a horizontal screw conveyor's capacity is 10 kg/sec. Length of conveyor is 32.8 ft and material factor is 0.4. Find the Hp requirement of the conveyor. 4
 c) What is the waste materials produced during food processing? 2
10. a) What are the stages of digestion of anaerobic system? 4
 b) Give a layout of milk processing plant. 4
 c) Define COP & BOP. 2

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination 2015
Subject: Technology of Meat Products (Theory)
Course Code: TMP-202

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any 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

1. a) Define meat and meat products. Briefly discuss different categories of meat products available in Bangladesh. 3.0
b) Briefly discuss the trends of edible meat production in Bangladesh. 2.0
c) Draw and label the wholesale cuts of a goat carcass. 3.0
d) Briefly discuss the factors that regulate the quality of meat. 3.0
2. a) Briefly discuss different types of proteins found in edible meat and mention their specific importance in meat industry. 4.0
b) Briefly explain why animal protein is superior to plant protein. 4.0
c) Chronologically compare and contrast red meat with white meat. 4.0
3. a) Briefly discuss how storage available carbohydrate in muscle influences the shelf life of meat. 5.0
b) Describe different types and steps of cattle slaughtering where unconsciousness is compulsory before slaughter. 4.0
c) Under which condition stunning is permitted for halal slaughter? 3.0
4. a) What is preservation of meat and meat products? State the different techniques of meat preservation. 4.0
b) What is sweet-pickle curing? Briefly discuss the smoking methods of meat preservation. 4.0
c) List some important chemical preservatives. State the hazards of using chemical preservatives in meat. 4.0

Section-B

5. a) Define organic meat. What are the fundamental conditions of producing organic meat? Briefly discuss the trends of organic meat production in Bangladesh. 4.0
b) Briefly discuss different functional meat and mention their specific health benefits. 4.0
c) How does meat act as anti-ageing agent of dietary component? 3.0
6. a) What is tenderization of meat? How does it affect quality of meat? 2.0
b) What are the effects of ageing on tenderization of meat? 3.0
c) Briefly discuss the principal hazards of mechanically separated meat consumption? 5.0
d) Write down the chemical composition of mechanically separated meat. 2.0
7. a) Briefly discuss the cardio-vascular and carcinogenic effects of red meat in human health. 4.0
b) Discuss different grades of beef with their selection specifications. 4.0
c) How would you proceed for the cleaning and sanitation of a meat plant? 4.0
8. Write short notes on (Any three): 3.0 x 4.0 = 12.0
 - a) Post-mortem changes in meat.
 - b) Non-meat ingredients.
 - c) PSE and DFD meat.
 - d) Modified Atmosphere Packaging of meat.

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 2nd year 2nd Semester Final Examination, 2015
Subject: Baking and Confectionary Technology (Theory)
Course Code: BCT-202

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer any 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) Explain why evaluation is important in the development of food product. 5
2. a) Enumerate the leavening agents which are used in bakery industry. Describe how does chemical leavening agent work during baking? 5
b) Define and classify the baking products. Give the NABIM classification of British wheat. 5
3. a) Draw the processing flow chart for manufacturing of bread. Give the formulation of sweet bread. 3
b) Briefly describe the steps of baking performed in the modern industry. Shortly describe the different grades of flour. 7
4. a) Enumerate the products and by products of flour milling industry. Differentiate between soft wheat and hard wheat. 4
b) Write down the classification of biscuits. Illustrate the manufacturing process of biscuits. 6
5. a) What are the types of rice flour? Shortly describe the uses of rice flour. 4
b) Illustrate how Emulsifiers works during making of baking products. Illustrate the physical test on dough. 6

Section-B

6. a) Define breakfast cereals. Write down the manufacturing process of breakfast cereals. 5
7. a) Discuss the health benefits if Cocoa consumption. Also discuss the cutting and drying process of pasta products. 4
b) List the basic ingredients of cake. Enumerate the defects of cake. Briefly discuss their causes and remedy. 6
8. a) Briefly describe the physical and chemical properties of Cocoa butter. 4
b) Describe the effect of acid and sugar ratio on the consistency of gel. Discuss the different types of Chocolate. 6
9. a) What is Bun? How is it different from bread? Shortly describe the manufacturing process of lollipop. 5
b) Briefly discuss the GMP that is performed during the production of Baking and Confectionary products. 5
10. Write short note (any four) (2.5x4=10)
 - i) Sugar Substitute,
 - ii) Advantages of Corn Syrup,
 - iii) Chocching and Tempering,
 - iv) Icing Sugar,
 - v) Non Stick Loaf Tin.

Chittagong Veterinary and Animal Sciences University
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BFST 2nd year 2nd Semester Final Examination, 2015
Subject: Food Microbiology (Theory)
Course Code: FMB-202

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 answer is discouraged.)

SECTION-A

- 1 a) Select two genera of bacteria from the following groups: lactic acid formers; pectinolytic; 4
propionics; butyrics, halophilic; slime forming and gas forming
b) Explain the role of pH, a_w and O-R potentials on food that influence the microbial activity. 3
2. a) Compare infection and intoxication. 4
b) Describe the impact of the disease caused by E coli O157; Listeria monocytogenes and Clostridium 3
botulinum.
3. a) Microbiologically characterize a safe drinking water. 3
b) How good manufacturing practice (GMP) helps establish HACCP concept in a food processing 4
industry?
4. a) Describe the consequence of the food borne disease caused by salmonella spp. 2
b) Write down the name of some enzymes producing organisms with application of the enzyme. 5
5. a) Describe the principles of food preservation. 2
b) How do you investigate a food borne disease outbreak? 5
6. a) Mention the biological cause of spoilage can product. 4
b) Write down the factors that influence the growth of microorganisms in meat? 3

SECTION-B

7. Write down the sources of contamination and spoilage of milk. 7
8. Discuss sources of contamination and aerobic spoilage of meat 7
9. a) What are the bacteria that grow in fish at chilling temperature and at room temperature? 3
b) List the factors which influence the kind and rate of spoilage of fish. 2
c) What are the evidences that fishes spoiled? 2
10. a) Define fermentation. Mention some fermented food products 2
b) How beer is produced in industry? 5
11. a) Define food additive. Mention some food additives. 2
b) Write five additive names, with its maximum tolerance and food involved in a tabular form 5
12. a) Mention different rots in eggs. 2
b) Summarize canning procedure with its different aspect. 5

Chittagong Veterinary and Animal Sciences University
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BFST 2nd year 2nd Semester Final Examination, 2015
Subject: Cereal and Legume Technology (Theory)
Course Code: CLT-202

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. **Answer any 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. Describe the anatomical structure of rice kernel with a neat sketch. Enumerate the pattern of distribution of nutrients in the rice kernel. 5
2. a) Briefly enumerate the importance of cereals in human nutrition. 5
b) Define Gelatinization Temperature. How amylose content affects the palatability characteristics of rice. 5
3. a) Define White belly. Describe the modern method of parboiling of rice. 4
b) Enumerate the various properties of parboiled rice and indicate the advantages and disadvantages of parboiled rice. 6
4. a) What are the traditional methods of rice milling? What are the products and by products of rice milling industry? 5
b) What are the reasons for breakage during rice milling? How can you overcome the damage during drying process? 5
5. a) Define Premix. Describe the coating method of rice enrichment. 4
b) Briefly mention the utilization of rice husk. Differentiate tempering of rice, wheat and pulse. 6

Section-B

6. What are the fundamentals of grain storage?-Explain briefly. 5
7. a) Define Extraction Rate. Write down the chemical changes that occur in food grains during storage. 5
b) Describe the various test employed for evaluation of wheat flour. Describe the functions of Brabender Farinograph and Brabender Extensograph with neat sketches. 5
8. a) Enumerate in brief the utilization of maize. 5
b) Define Ready-to-eat products. Describe in brief the manufacturing process for Corn Flakes. 5
9. a) Why soymilk is considered a healthy alternative to Cow's milk. Briefly describe the main uses of pulses in Bangladesh. 5
b) Mention the specific characteristics of barley for malting and brewing. Why high nitrogen barley is unsuitable for malting of barley. 5
10. a) Describe in brief the manufacturing process of beer from barley in flow sheet. 5
b) Differentiate between Bag Storage and Bulk Storage. Enumerate the use and Properties of starch. 5

Chittagong Veterinary and Animal Sciences University
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BFST 2nd year 2nd Semester Final Examination, 2015
Subject: Nutritional Evaluation of Food Processing
Course Code: NFP-202

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

1. a) Define food processing. 2
b) Classify different types of food processing method with examples. 3
2. a) What do you mean by high pressure processing (HPP) and ultra high temperature process (UHT)? 5
b) Explain the effects of high pressure processing on the nutritional composition of food. 5
3. a) How loss of flavor and aroma can be reduced during drying? 3
b) Describe the effects of microwave heating on foods. 4
c) Write down the properties of packaging materials. 3
4. a) Explain the effects of concentration on food. 4
b) Briefly describe the gelatinization process of starch. 4
c) What is edible film? 2
5. a) "Storage has a big impact on nutritional value of food"- Give your opinion based on the statement. 4
b) What are anti-nutrients? 2
c) What are the processing methods that can remove the toxic factors from leguminous food? 4

Section-B

6. Discuss the adverse health effects of packaging materials that come into food chain. 5
7. a) What types of chemical changes take place during dehydration of foods? 4
b) Write down the effects of temperature on physico-chemical properties of fruits and vegetables. 4
c) What do you mean by osmotic dehydration? 2
8. a) "A number of nutrients are lost during preparation of food at home"- how do you can minimize the loss? 4
b) Describe the post-harvest losses of cereal grains at various stages of processing. 4
c) List the six aspects of quality of a food. 2
9. a) Compare the nutritional composition of fresh, frozen and canned fruits and vegetables. 7
b) State the health benefits of taking germinated food. 3
10. Write short notes on the following topics-
 - i. Bio- active compound 3
 - ii. Benefits of blanching and fermentation 4
 - iii. Food safety issue of canned food 3

Chittagong Veterinary and Animal Sciences University
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BFST 2nd year 2nd Semester Final Examination, 2015
Subject: Food Chemistry (Theory)
Course Code: FCM-202

Full Marks: 70

Time: 3 hours

(Figures in the right margin indicate full marks. Answer Four (4) questions from each section. 1 & 6 questions are compulsory. Use separate answer script for each section. **Split answer is not allowed.**)

Section-A

1. Write down the structures of followings: 5
 - a) Glycogen
 - b) β -Carotene
 - c) Sanger's reagent
 - d) Triglyceride
 - e) Sucrose

2.
 - a) Define the following terms- bound water, adsorb water, hydrate water and imbibed water. 2
 - b) What is water activity? Explain the importance of water activity in food. 5
 - c) What is water purification? List the name of water purification methods with example. 3

3.
 - a) Differentiate between amylose and amylopectin. 3
 - b) Briefly explain the chemical reactions of monosaccharide. 5
 - c) Write down the chemistry of caramelization reaction. 2

4.
 - a) Define the term denaturation. Write down the characteristics of denatured protein. 3
 - b) Briefly discuss the theories of gel formation of protein. 5
 - c) Why Edman's reagent is better than Sanger's reagent? 2

5.
 - a) What is vitamin? Classify vitamins on the basis of solubility. 3
 - b) Write down the chemistry and physiological function of vitamin A, E and B₁₂. 5
 - c) Differentiate between osteomalacia and osteoporosis. 2

Section-B

6. Draw a pictorial diagram of drinking water treatment plant. 5

7.
 - a) What is heavy metal? 1
 - b) Explain heavy metal contamination process in food chain. 5
 - c) How vitamin-C and silicon reduce the effect of heavy metal toxicity in human body? 4

8.
 - a) What is lipid? Discuss briefly the function of lipid. 3
 - b) Define the term peroxidation. Write down the mechanism of peroxidation reaction in lipid. 5
 - c) Write down the mechanism of antioxidant activity in food. 2

9.
 - a) Define the following terms- flavor, aroma and pigments. 3
 - b) Enlist the name of common food flavors with their key chemicals. 5
 - c) What are the chemical constituents are responsible for the taste of the food? 2

10. Write short notes on:
 - a) Lipoproteins 3
 - b) Non enzymatic Browning reaction 4
 - c) Hydrogenation 3