

Chattogram Veterinary and Animal Sciences University

Faculty of Food Science and Technology

BFST 3rd Year 1st Semester Final Examination 2019

Course Title: : Waste Management and Environmental Science (Theory)

Course Code: WME-301

Full Marks:35

Time: 2 hours

(Figures in the right margin indicate full marks. **Answer any Three (3) questions** from each section of which question number **1 & 5 are compulsory**. Use separate answer script for each section. **Split answer is strongly discouraged.**)

SECTION-A

1. What are the physical and chemical indicators of water quality? Describe the effect of p^H and temperature on water quality. 4
2. a) What is acid rain? How is it formed? What are the causes of acid rain? Mention the ecological effect of acid rain. 5
b) Classify primary air pollutants based on sources. Mention the effect of CO pollution on human health. 2
3. a) What do you mean by hardness of water? Describe, how you can remove permanent hardness. 4
b) Briefly discuss the reactions of Ion-Exchange process. 3
4. a) Why Green and Orange-A category industries do not need EIA, while Orange –B and Red category industries must need Environmental Impact Assessment (EIA) reports? 3
b) Discuss the procedure of EIA methodology. 4

SECTION-B

5. a) What parameters are measured in indoor air quality assessment? 2
b) Write down the main objectives of EMP. 1
6. a) What do you mean by primary and secondary treatment of waste water? 2
b) Discuss in detail about the flow diagram of domestic waste water treatment plant. 5
7. a) How do you propose to control medical waste, fruits and vegetables residuals, chemical waste and household domestic wastes? 4
b) Write down the parameters needed to clarify the wastewater characteristics of a system. 3
8. a) Plastic materials are widely used in industrial and domestic purposes of everyday life. But it seems to be a real threat for the environment. Give your opinion about the benefits and drawbacks of plastic uses. 4
b) Discuss the impact of noise on our health. 2
c) Why recycle and reuse are getting popularity in developed countries. 1

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BFST 3rd Year 1st Semester Final Examination 2019

Course Title: : Oil and Fat Technology (Theory)

Course Code: OFT-301

Full Marks:35

Time: 2 hours

(Figures in the right margin indicate full marks. **Answer any Three (3) questions** from each section of which question number **1 & 5 are compulsory**. Use separate answer script for each section. **Split answer is strongly discouraged.**)

SECTION-A

1. a) Differentiate between vegetable fat and animal fat. 2
b) Enumerate in brief the malaxation and decantation process in production of oil from olive fruit. 3
2. a) Define the rendering of animal fat. 1
b) Draw a pictorial diagram of fatty oil extraction process from seed. 2
c) How will you extract oil/fat from different food samples? 3
3. a) What is tryglyceride? 1
b) Justify the positive and negative effects of crude oil refining. 2
c) Elaborate the EDTA refining of palm oil. 3
4. a) Write short notes on the following: 2X3=6
i) Iodine value and Acid value
ii) Deacidification and deodorization
iii) Fractionation and Interesterification

SECTION-B

5. a) List down the positive and negative effects of hydrogenation. 1.5
b) How can you recognize interesterified fat in your food? 1.5
c) Explain the chemistry of hydrogenation. 3
6. a) Differentiate between peroxidation and photooxidation process of oil. 2
b) Illustrate the major and minor elements of crude oil. 4
7. a) How do you measure the saponification value of soyabean oil. 2
b) Explain the working principles of saponification value and peroxide value determination test. 4
8. a) "Cholesterol, though needed metabolically but not essential in diet."- Explain the statement. 3
b) Discuss the prospects of oil industry in Bangladesh. 3

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 1st Semester Final Examination 2019
Subject: Clinical Nutrition (Theory)
Course Code: CLN-301

Full Marks: 35

Time: 2 hours

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

Section-A

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|----|--|-------|
| 1. | a) What do you mean by clinical nutrition and community nutrition? | 3 |
| | b) Differentiate between clinical nutritionist and dietitian. | 3 |
| 2. | a) Deconstructing the clinical nutrition patient encounter process. | 3 |
| | b) Illustrate the principles that facilitate behavior changes of a person. | 3 |
| 3. | a) What is celiac disease? Enlist the risk factors of celiac disease. | 1+1=2 |
| | b) Why gluten is called the main culprit for celiac disease? | 4 |
| 4. | a) Define gout. Mention the risk factors of gout. | 3 |
| | b) Explain the pathophysiology of Rheumatoid arthritis. | 3 |

Section-B

- | | | |
|----|---|-------|
| 5. | a) Differentiate between gastritis and ulcer. | 2 |
| | b) Narrate how proton pump inhibitors (PPI) work in human body. | 3 |
| 6. | a) Mention the risk factors of ASD. | 2 |
| | b) Explain the dietary management of ASD patient. | 4 |
| 7. | a) List out the disorders of the upper GI tract with typical symptoms and their nutritional consequences. | 2 |
| | b) Explain different types of diarrhea. How will you control a diarrhea patient? | 2+2=4 |
| 8. | a) What are the symptoms of Crohn's disease? | 2 |
| | b) How can you manage GERD without drugs? | 4 |

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 3rd year 1st Semester Final Examination, 2019
Subject: Technology of Fruits and Vegetable Products (Theory)
Course Code: FVP-301 (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. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. "Fruits and vegetables have major contribution in human nutrition."- Justify the statement. 5
2. a) Define Hurdle Technology. Write down the principles of Hurdle Technology. 5
b) Illustrate the principle of freezing. Summarize the different methods of freezing. 5
3. a) Can bananas be stored in refrigerator? Give your opinion. 3
b) Construct the schematic diagram of enzymatic browning. How do you prevent enzymatic browning in fruits and vegetables? 7
4. a) What is pectin? Write down the mechanism of gel formation. 5
b) Write down the common problems occurred in Jam production. 5
5. a) What is ripening? Indicate the effects of ethylene on the ripening of climacteric and non-climacteric fruits. 5
b) How can you control ethylene production in fruits and vegetables? 2
c) Give some examples of physiological and biochemical changes in fruits and vegetables. 3

Section-B

6. a) Differentiate between fruits and vegetables. Classify fruits and vegetables with examples. 5
7. a) What is fruits preserve? What are the general considerations in making fruits preserve? 3
b) Briefly describe the process of making fruits preserve. 7
8. a) Define vinegar. Briefly explain the different types of vinegar. 5
b) Recognize the vinegar preparation with technological flow sheet. 5
9. a) Illustrate the technological approach of food preservation by means of chemical preservatives. 5
b) State the mechanisms behind food irradiation. 5
10. a) "Fruits and vegetables can be preserved by antibiotics"- Justify your opinion. 5
b) Interpret the changes occurred during freezing. 5

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

Section-A

1. Write down the application of food biotechnology with some important achievements in a) transgenic animals, b) plant tissue cultures and c) microorganism. 5
2. a) Differentiate traditional breeding and recombinant DNA technology. Briefly describe the molecular mechanism of DNA replication. 5
b) What are the sources of commercial enzymes? Illustrate the flow chart of bulk industrial enzyme production. 5
3. a) What is genetically modified (GM) crop? Give examples of foods derived from genetically modified (GM) crop. 4
b) Briefly describe the process of purification and separation of nucleic acids from cell lysates. 6
4. a) Describe the production of beer from the malt and its recovery and purification with industrial application. 5
b) What is Baker's yeast? Illustrate Baker's yeast production process flow chart. 5
5. a) Analyze the mechanisms of different types of bioreactors which are based on the mode of operation. 5
b) Briefly discuss the factors influence the fermentation process. 5

Section-B

6. a) What is mutagenomics? Illustrate an outline of bioprocessing operations. 5
7. a) Write down the ideal characteristics of industrial strains. What are the strategies adopted for the isolation of a suitable industrial microorganism? 5
b) "Strain improvement is a vital part of process development in most fermentation industries"- Justify. 5
8. a) What is tissue culture? Classify tissue culture techniques with examples. 5
b) Briefly describe steps involved in the generation of genetically transformed plants using the *Agrobacterium tumefaciens* and microprojectile bombardment approach. 5
9. a) How gene transferred from one organism to another through biological mode? 6
b) Write down the concept and working principles of gel electrophoresis in molecular biology. 4
10. a) What is aeration and agitation? Drive a relationship between overall mass-transfer co-efficient for liquid phase K_L and the individual mass-transfer coefficient k_L and k_G . 5
b) Briefly explain different physical, chemical and microbial factors affecting food spoilage. 5

Chittagong Veterinary and Animal Sciences University

Faculty of Food Science and Technology

BFST 3rd year 1st Semester Final Examination, 2019

Subject: Fish Processing Technology (Theory)

Course Code: FPT-301 (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. Use separate answer script for each section. Split answer is not allowed.)

Section-A

1. Define FPC. "Protein and lipid have the role in fish quality."- Justify the statement and discuss with your opinion. 5
2. a) Identify the factors that affect the fish composition. 4
b) Recognize the causes, effects and remedies of rigor mortis. 6
3. a) What is freeze burn? Mention the causes of freeze burn. 5
b) Demonstrate the differences between drying and dehydration of fish. 5
4. a) Define smoking of fish. Indicate the preservation mechanism of smoking on fish. 4
b) State the principle of canning. Demonstrate the technological approaches of carp fish canning. 6
5. a) What do you mean by active packaging? Enlist the major requirements of frozen fish packaging. 4
b) Give brief discussion on the following terms: 3 X 2 = 6
(i) MAP; (ii) CAP; (iii) VP

Section-B

6. a) "Fish is one of the most perishable among food stuff"- Justify the statement and give your opinion to solve the problem in processing aspects. 5
7. a) Enlist the fish byproducts. Discuss the use of fish byproducts. 4
b) What do you mean by *Sous vide* technology? Briefly describe the *Sous vide* process with flowchart. 6
8. a) Illustrate typical fish freezing curve. Describe the factors affecting freezing time. 5
b) Compare IQF shrimp prepared by different freezing process. Discuss the advantages and disadvantages of IQF. 5
9. a) Briefly describe the physical and chemical approaches to minimize the risk of fish and fishery products. 7
b) What control measures should consider against sea food pathogens? 3
10. a) What is marketing channel? Sketch marketing channel of Hilsha fish. 3
b) Give an overview of the marketing channels of fish in Bangladesh. 4
c) Enumerate the problems related to the landing and wholesale markets of fish. 3

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

Section-A

1. What are the factors contribute to spoilage of fish? Discuss enzymatic spoilage of fish. 5
2. a) Define freezing time. Calculate the refrigeration requirements to freeze 5 tons of fish, where initial temperature of fish is 27°C and storage temperature is -40°C. 5
b) Enumerate the advantages of quick freezing. Compare different quick freezing techniques for fishery products. 5
3. a) Differentiate between cold smoking and hot smoking. 4
b) What are the important issues need to consider during fish fermentation? 2
c) Explain the physical and chemical changes during fish fermentation. 4
4. a) What are the common fish preservation methods? Describe briefly. 4
b) Explain the mechanism of salt preservation of fish. 3
c) Illuminate how you can identify the spoilage in salted fish. 3
5. a) What are the fish byproducts? Briefly describe uses of different fish byproducts. 3
b) Explain the importance of some fish byproducts on commercial fields. 3
c) What is canning? Show the process flow diagram of canning procedure of tuna fish. 4

Section-B

6. a) What are the basic concepts of Aquaculture, Mari-culture, IMTA and ISSCAAP. 3
b) Find out the characteristics of good quality salted fish. 2
7. a) Define fish-handling. Explain the factors you should consider for fishing. 5
b) Justify- "water and fat are interchangeable". 3
c) Compare between terrestrial and marine animals. 2
8. a) What is rigor mortis? Briefly describe the different steps of rigor mortis in fish. 3
b) How can you determine the rigor mortis in fish? 2
c) Enumerate aquatic bio toxins in seafood and fresh water. 2
d) Describe the benefits of eating sea foods. 3
9. a) List the common methods for fish drying in Bangladesh. Discuss the traditional storage of dried fish. 5
b) Categorize the fermented products of fish with proper example. How will you prepare products in which the original fish are reduced to the form of a paste? 5
10. Write short notes on (any four) 2.5X4=10
 - i. Box tunnel
 - ii. Control of black spot in prawn
 - iii. Value added sea food
 - iv. Marketing channel of sea food
 - v. Cold smoking and hot smoking