Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th Year 1st Semester Final Examination 2019
Course Title: : Food Quality Control and Assurance (Theory)
Course Code: FQA-401 (T)

Full Marks:70   **Time: 3 hours**
(Figures in the right margin indicate full marks. **Answer any Four (4) questions** from each section of which
question number **1 & 6 are compulsory.** Use separate answer script for each section. **Split answer is
strongly discouraged.**)

SECTION-A

1.   Explain the term "Quality Control". Summarise the methods for determining quality of food.   5

2.   a)   Construct a flow diagram of product development in food industry.   4
     b)   Why is sensory evaluation important? How to conduct a sensory evaluation test for food   6
          products?

3.   a)   Define and classify panelists. State the selection approaches of panel member.   5
     b)   Write short note on   5
               i)   Triangle test
               ii) Hedonic rating test

4.   a)   Define food storage. Generalize the guidelines for food storage.   5
     b)   Explain the "Capability Index". Let us assume that the specification for a food product limits the 5
          Iron (II) content between 14 to 22 PPM. Calculate the capability index.

5.   a)   "Food adulteration- a serious public health concern in Bangladesh". Give your opinion.   5
     b)   What is "Temperature Danger Zone"? How can you avoid temperature danger zone to protect   5
          food?

SECTION-B

6.   a)   State the principle of spectroscopy with the mechanism of absorption and emission spectrum.   5

7.   a)   Define IR Spectroscopy. Calculate the fundemental vibrational mode for HCl, $BeCl_2$, NH_3, 5
          CH_4, CO_2 and C_6H_6.
     b)   State the working principle and instrumentation of IR.   5

8.   a)   Express the law of absorption and relate to the transmittence of the incident radiation.   5
     b)   Define electromagnetic radiation. Imagine, 2.5×10^{-4} M solution of a substance in a 1cm length 5
          at λ_{max} 245 nm has absorbance 1.17. Calculate ε_{max} for this transition.

9.   a)   Write down the principle of AAS. A sample of seawater has analysed by using AAS along with   5
          six standard solution. Use a calibration curve to find the concentration of Chromium (Cr) in the
          sea water. Experimental data are as following

Cr (PPM)	Absorbance (λ=358nm)
1.00	0.062
2.00	0.121
3.00	0.193
4.00	0.275
5.00	0.323
6.00	0.376
Sample (Sea water)	0.215

     b)   How can you determine the R_f value from TLC plate? Expalin.   5

10. a)   Enlist the purpose of food coloring. What are the permitted and non-permitted food colors?   5
     b)   How can you identify the food dye by using UV-visible spectrophotometer?   5

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th year 1st Semester Final Examination, 2019
Subject: Refrigeration, Air conditioning in Food Processing (Theory)
Course Code: RAP-401 (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. Briefly explain the application of refrigeration in-   5
   (i) Food processing, preservation and distribution;
   (ii) Comfort Air-conditioning.

2. a) Define the term "Effective Temperature". Analyze the basic concepts and   1+4=5
      factors affecting thermal comfort.
   b) A building is to be maintained at 23°C dry bulb temperature and 55% saturation   5
      in an ambient of 31°C dry bulb temperature and 23°C wet bulb temperature.
      What are the sensible and latent air-cooling loads for a fresh air flow of 1.45
      kg/s?

3. a) "Subcooling and superheating of a refrigerant vapor is desirable for a vapor   5
      compression refrigeration system"- Justify statement with proper reasons.
   b) What is meant by "Ton of refrigeration"?   1+4=5
      1 ton of mango fruits at 35°C are to be cooled to 4°C in 8 hours. The radiation
      and other losses are estimated to be 10% of refrigeration load. Find the tonnage
      of refrigeration and horse power of the motor to be used if the efficiency of the
      motor is 85%. Assume specific heat of mango is equal to that of water.

4. a) What is co-efficient of performance (COP)? Analyze the sources of troubles in a   1+4=5
      refrigeration system and their remedies.
   b) A cold storage room is being maintained at 2°C using a vapor-compression   5
      refrigeration system that uses R-134a. The evaporation and condenser
      temperatures are 5°C and 40°C respectively. The refrigeration load is 22 tons.
      Calculate:
      i) Mass flow rate of refrigerant
      ii) Compressor power requirement
      iii) Co-efficient of performance (COP)
      Assume, the unit operates under standard condition the compressor efficiency is
      85%, evaporator pressure 243 KPa, condenser pressure 1015 KPa. Enthalpy of
      refrigerant at exit from condenser, beginning of compression stroke and end of
      the compression stroke is 156 KJ/Kg, 296 KJ/Kg and 327 KJ/Kg respectively.

5. a) Sketch "comfort chart" and show on it the "comfort zone" with description.   5
   b) Derive an expression for overall heat transfer co-efficient in a simultaneous   5
      convection-conduction-convection heat transfer.

Section-B

6. a) What do you understand by "Defrosting"? Classify defrosting methods and explain the working principle of any one defrosting method with the help of neat diagram. 5

7. a) How to design a winter air-conditioning system in conformity with comfort condition at 24°C and 60% RH? 5

   b) Describe the outline and psychrometric chart of the following process: 5
      i) Adiabatic saturation
      ii) Summer air-conditioning with single cooling and bypass mixing.

8. Briefly explain the working principles and operation of any of **two** of the following refrigeration system with neat P-h and T-S diagram: 5X2=10
      a. Multi-stage vapor compression system
      b. Cascade system
      c. Vapor absorption system

9. a) Define "By-pass" factor. Describe the important psychrometric properties of moist air. 1+4=5

   b) Determine the final DBT and RH of air washed with recirculated spray water if the air is initially at DBT 37°C and 60% RH as it enters into air washer which has a humidifying efficiency of 85%. 5

10. a) Describe the actual vapor compression cycle with neat P-h and T-S diagram citing variations from ideal cycle. 5

    b) Explain types of refrigerants. Discuss the numbering system for refrigerants with few examples. 5

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 **5** is compulsory. Use separate answer script for each section. **Split answer is strongly discouraged.**)

SECTION-A

1. a) Illustrate the factors affecting quality of Poultry meat.   5
   b) Write down the detail chemical composition of squab meat.   1

2. a) Compare the nutritional composition of hen egg with duck egg.   2
   b) Make a list of egg products. Briefly discuss the preservation methods of egg products.   1+3=4

3. a) What are the procedures involved in the manufacture of meat extracts? Describe any one   1+2=3
      of them.
   b) Illustrate the sources of carcass contamination of Poultry meat in the processing plant.   3

4. a) Define food additive. List common food additive with their mechanism of action, uses   4
      and examples.
   b) Draw and identify different parts of a chicken egg.   2

SECTION-B

5. a) Define the following terms :   0.5×6=3
      Fancy meat, Broiler, GMP, MDM, Table egg and Food control.
   b) Explain how "air cell in egg" is formed   2

6. a) Differentiate the following terms: 0.5×4=2
      i) Dye and Lake
      ii) Blastoderm and Blastodisc
      iii) Condition and Reject
      iv) CCP^1 and CCP^2
   b) Explain the underlying mechanism of "Hurdle Technology" and "Water Glass Method"   4
      in preserving meat and egg respectively.
7. a) Sketch how "pink meat in poultry" is formed.   2
   b) Outline the function properties of egg proteins in food system with example   2
   c) List the types of spoilage found in meat with the microorganisms involved.   2

8.   Write following short notes on :   3 × 2=6
   a) Turkey salami
   b) Smoking
   c) Shrinkage

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th Year 1st Semester Final Examination 2019
Course Title: Leadership and Food Entrepreneurship Development (Theory)
Course Code: FED– 401 (T)

Full Marks: 35   **Time: 2 hours**

(Figures in the right margin indicate full marks. **Answer any THREE questions** from each section where
Question No. **1 is mandatory.** Use separate answer script for each section. **Split answer is strongly
discouraged.**)

SECTION-A

01. a) What do you understand by innovative and imitative Entrepreneur? Distinguish   **2.0**
        between Entrepreneur and Entrepreneurship.
     b) Discuss the functions of an entrepreneur.   **3.0**

02. a) Define entrepreneurial mobility. Distinguish between knowledge, skills and   **2.0**
        attitudes.
     b) Briefly discuss the categories of factors that influence the entrepreneurial growth.   **4.0**

03. a) Define financing. Write the necessities of financing in an enterprise.   **2.0**
     b) State and discuss the sources of financing of an enterprise in context of   **4.0**
        Bangladesh

04. a) State the role of leadership in running a food enterprise.   **3.0**
     b) What type of leadership is suitable in smooth running commercially viable food   **3.0**
        Enterprise in Bangladesh context? State reasons to justify your answer.

SECTION-B

05. a) Define opinion leadership. Write the qualities of a good leader.   **3.0**
     b) State the comparison between professional and local leader in regards to food   **3.0**
        industry.

06. a) Define motivation. Write the role of motivation for development of small scale   **3.0**
        food enterprises in Bangladesh.
     b) Briefly discuss the Maslow's Need Hierarchy theory.   **3.0**

07. a) Define project report. Write the significance of project report.   **2.0**
     b) Briefly discuss the basic contents of a project report.   **4.0**

08. **Write short notes on (any three):**   **(3 x 2) =**   **6.0**
        (i) Rural Entrepreneurship.
        (ii) Scope of Agro-based food entrepreneurship.
        (iii) Project appraisal Techniques.
        (iv) Small and Medium Entrepreneurship (SME).

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th year 1st Semester Final Examination 2019
Subject: Epidemiology and Public Health (Theory)
Course Code: EPH-401

Full Marks: 70   **Time: 3 hours**

(Figures in the right margin indicate full marks. Answer any **4** 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 epidemiology. Write down the applications of epidemiological studies.   1+2=3
    b) Express the meaning of distribution and determinants of disease.   2

2. a) How agent, host and environment affect the nutritional diseases upon epidemiological triad?   5
    b) Show the relationship between relative risk, attributable risk and odds ratio.   5

3. a) Classify the epidemiological study design. Briefly noted down their uses and limitations.   8
    b) What are the major differences between survey and surveillance?   2

4. a) Recognize sufficient and necessary causes of disease with example.   4
    b) Briefly describe the steps in sampling design.   3
    c) Explain cluster sampling with example.   3

5. a) What do you mean by ethics? Discuss the principles of ethics.   1+4=5
    b) Define validity and reliability. Demonstrate the threats of validity.   2+3=5

Section-B

6. a) What is interaction?   2
    b) Why is interaction important for investigator?   3

7. a) A study was conducted in a hilly area to find out the relation between alcohol consumption and coronary heart disease (CHD). Among 300 local alcohol consumers 27 persons developed CHD, whereas there were 37 persons CHD cases among 900 non-alcohol consumers.   6
    - Which type of this study is?
    - Calculate the relative risk and odds ratio and interpret the association
    b) What are the measures of morbidity and mortality of a least developed country?   4

8. a) What is random error? How can you reduce random error in epidemiological studies?   2+3=5
    b) Describe the selection bias and classify the types of selection bias.   5

9. a) Define communicable and non-communicable disease with example.   5
    b) Briefly describe the steps of outbreaks of food borne illness.   5

10   Write short notes on- (any two)   5×2=10
    a) Ghagra shak incidence in 2007
    b) Sensitivity and specificity
    c) SMART survey
    d Measurement bias

Chittagong Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th year 1st Semester Final Examination 2019
Subject: Renewable Energy in Food Processing (Theory)
Course Code: RFP-401(T)

Full Marks: 70.0   **Time: 3 hours**

(Figures in the right margin indicate full mark. Answer four (4) questions from each section where question no. 1 & 6 are compulsory. Use separate answer script for each section. **Split answer is strongly discouraged.**)

Section-A

1. a) Discuss about the environmental impact of using fossil fuels. — 2
    b) How could you use renewable energies in food processing sector?-Explain. — 3

2. a) Draw the block diagram of solar thermal energy system and explain how thermal energy can be stored. — 3
    b) Briefly describe the function of solar pond. — 5
    c) List the advantages of solar water heaters. — 2

3. a) Define wind energy and give an idea of nature of wind. — 3
    b) Derive an expression for available power density of wind energy. — 4
    c) For a given location, the wind speed at a height of 10 meters from the ground is measured as 5 meters per second. What would be the wind speed at the height of 20 meters? — 3

4. a) Briefly describe the function of box type solar cooker and dish type solar cooker. — 3+3
    b) Write down several ways of using solar energy for cooling. — 4

5. a) Design and describe the operation of a solar water heating system that can be used for both domestic and industrial applications. — 5
    b) Write the operation of a shallow basin type solar still to show the solar desalination process. — 5

Section-B

6. a) How is cooking by boiling different from cooking by frying? Why is the box type of solar cooker used only for cooking by boiling? — 3
    b) What are the major advantages of solar cells over conventional methods of power system? — 2

7. a) How could you use hydro power to drive electric generators? Draw a neat diagram of the system and describe its operation. — 5
    b) Draw the schematic diagram of single flash steam power plant and binary power plant. — 2.5+2.5

8. a) Define AM. Mention the amount of solar energy reaching earth's surface at sun's different positions. — 4
    b) Write down the photovoltaic application of solar energy. — 2
    c) Describe the three broad categories of PV power system. — 4

9. a) Describe electricity generation mechanism of solar power. Also form an equation of output current with the help of one diode model of solar cell. — 6
    b) Draw I-V and P-V characteristics curves of solar cell for different irradiation and temperature level with proper explanation. — 4

10. a) Why conversion of biomass is needed? Describe conversion processes. — 4
    b) How biogas is produced from biomass? Describe all the three phases that run into a biogas unit. — 3
    c) Describe construction and operation of a biogas plant. — 3

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th Year 1st Semester Final Examination 2019
Course Title: Extension Communication Management (Theory)
Course Code: ECM– 401 (T)

Full Marks: 35   **Time: 2 hours**

(Figures in the right margin indicate full marks. **Answer THREE questions** from each section where Question No. **1 is mandatory**. Use separate answer script for each section. **Split answer is strongly discouraged.**)

Section- A

1) a) Define extension and agricultural extension.   1+1=2

   b) State the objectives of extension.   3

2) a) Define extension organization with example. Write down the salient features of an extension organization.   1+3=4

   b) State the different types of leadership.   2

3) a) What do you mean by motivation?   2

   b) Diagrammatically show the Maslow's need theory of motivation.   4

4) a) What is programme planning?   1

   b) Briefly describe the different steps of extension programme planning.   3

   c) Compare between monitoring and evaluation.   2

Section- B

5) a) Define communication. State the key elements of a communication process.   1+2=3

   b) Briefly describe the Berlo's model of communication.   3

6) a) Define innovation. Enlist ten innovations in food and nutrition aspects of Bangladesh.   1+2=3

   b) Write down the characteristics of innovation.   3

7) a) What is Human Resource Development?   2

   b) Differentiate formal and non-formal education.   2

   c) Distinguish between education and training.   2

8) Write short notes on any Two (2) of the followings: 3×2=6

   a) Philosophy of extension.

   b) Motivation cycle.

   c) Farm and Home visit.

   d) PRA and RRA .

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th Year 1st Semester Final Examination 2019
Course Title: Marketing of Food Products and Business Management (Theory)
Course Code: MFP– 401 (T)

Full Marks: 70   **Time: 3 hours**

(Figures in the right margin indicate full marks. **Answer THREE questions** from each section where
Question No. **1 and 5 are mandatory**. Use separate answer script for each section. **Split answer is
strongly discouraged**.)

Section- A

1) a) "Customer is the king in Marketing". Justify your position regarding the statement.   3

   b) Exemplify Need, Want and Demand.   4

   c) Explain 'Value' in marketing.   4

2) a) Interpret STP in strategic marketing plan.   4

   b) Mention 4Cs against the 4Ps.   4

   c) Produce some examples to show how culture and economic factors affect business
   and marketing.   4

3) a) Write the scopes where you can use your marketing knowledge as a Food
   Graduate.   4

   b) Illustrate the Marketing Process.   4

   c) Define and describe the elements of marketing mix.   4

4) a) What are the problems and prospects of food marketing in Bangladesh?   4

   b) Produce two examples for both 'Vision' and 'Mission'.   4

   c) Develop four SMART Business Objectives for a hypothetical food processing
   plant.   4

Section- B

5) a) Discuss the value of studying business management.   4

   b) Analyze your personal SWOT as a Food Graduate.   4

   c) Characterize 'Organization'.   3

6) a) "Management involves coordinating and overseeing the work activities of others   4
   so their activities are completed efficiently and effectively." Discuss the significance
   of this statement with regard to the achievement of organizational goal.   4

   b) Show the general skills you need to develop If you like to be a good manager.   4

   c) Describe the functions of management.

7) a) Define Management.   2

   b) Mention a few principles of management proposed by Fayol.   5

   c) Discuss the factors that should be considered in preparing a marketing plan for
   food product.   5

8) a) Explain the factors you will consider while hiring a personnel.   4

   b) "Leader is a Change maker". Judge the statement.   4

   c) Point out the qualities of a good leader with example.   4