Chattogram Veterinary and Animal Sciences University
Faculty of Food Science and Technology
BFST 4th Year 1st Semester Final Examination-2021
Course Title: Extension Communication Mangement (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 extension service.   2

    b) Enlist the principles of extension and explain any two of them.   3

2. a) Differentiate between formal education and extension education.   2

    b) "Extension education is non-formal type of education"- Explain.   4

3. a) What is leadership?   1

    b) Briefly discuss different types of leadership.   5

4. a) Define learning. List the elements of learning process.   3

    b) Describe the law of exercise and its implications in extension works.   3

SECTION-B

5. a) What is noise in communication?   2

    b) Briefly discuss the key elements of communication process.   4

6. a) Name three extension organizations under the government of Bangladesh.   2

    b) State the Berlo's model of communication.   4

7. a) Define innovativeness and adopter categories.   3

    b) Describe the salient features of 'early adopters' in the innovation decision process.   3

8. Write short notes on the following (any two)   3x2=6

    (a) Maslow's need theory; (b) Dimensions of extension; (c) Role of local leaders in agricultural extension works.

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 4th year 1st Semester Final Examination, 2022
Course Title: Poultry Products Technology (Theory)
Course Code: - PPT- 401 (T)

Full Marks: 35   **Time: 2 Hours**

(Figures in the right margin indicate full marks. Answer any three (3) questions from each section where question number 5 is compulsory. Use separate answer script for each section. Fractions of the questions must be answered together.)

SECTION-A

1. a) Define meat and egg. Differentiate composition of meat from egg.   3
   b) Briefly discuss the food value of egg.   3

2. a) How should you handle broiler to get good quality industrial meat?   3
   b) How should you estimate meat quality of ~~beef?~~ poultry ?   3

3. Write about manufacturing of meat extracts and dried meat products.   6

4. a) How should you differentiate fresh meat of different species?   3
   b) Red meat or white meat which should prefer and why?   3

SECTION-B

5. a) Name three of each of the additives and preservatives in preparation and preservation of meat products.   2
   b) Describe preparation of two egg recipes.   3

6. a) Draw and label of a modern broiler processing plant.   3
   b) When and how do microorganisms deteriorate meat quality?   3

7. a) How should you preserve meat for prolonged period of time?   3
   b) How do meat lose quality during various stages of preservation?   3

8. Write short notes on (Any three)   2×3 = 6
   a) HACCP
   b) Chicken fry
   c) Chicken meat ball
   d) Sweet pickle curing

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 answers are strongly discouraged. Fractions of the questions must be answered together.)

Section-A

1. a) Write down the responsibilities of QC department.   3
    b) What do you mean by "Accreditation"?   2

2. a) Define food adulteration. Construct the categories of food adulteration.   5
    b) What do you mean by food safety? Describe the different food storage condition.   5

3. a) List out the principal bacteria associated with food borne illness.   2
    b) What do you mean by "Prions"?   2
    c) Mention the general characteristics of mycotoxin.   3
    d) How decomposition makes food safety hazards?   3

4. a) How processing-induced chemicals make food safety hazards? Explain with   5
        examples.
    b) Mention some examples of extraneous materials that may be found in food.   2
    c) What do you mean by chemical hazards? List out various types of chemical   3
        hazards.

5. a) Write down the types of spectroscopy.   2
    b) Explain instrumentation and working details of double-beam UV-Visible   6
        spectrophotometer with schematic diagram.
    c) Give some examples of natural colors.   2

Section-B

6. a) Discuss about the sensory characteristics of food.   3
    b) Why sensory analysis in the food industry is very important?   2

7. a) Write a short note on "Tristimulus color values".   3
    b) Write down the common chemical tests used for food products.   4
    c) How post-harvest factors affected the quality of food?   3

8. a) Write down the key elements of quality.   2
    b) Mention the drawbacks of ISO 9000.   3
    c) What is SQC? Write down the significance of SQC.   3
    d) Enlist the common adulterant of food.   2

9. a) Classify the types of control charts.   2
    b) Explain in details about the definition, purpose and advantages of control charts. 5
    c) What do you mean by acceptance sampling? Explain the acceptance sampling   3
        plan.

10. Write short notes on: 10
    a) Total Quality Management.
    b) The deming cycle.
    c) History of ISO 9000:2008.
    d) Codex Alimentarius.

CHATTOGRAM VETERINARY AND ANIMAL SCIENCES UNIVERSITY
Faculty of Food Science and Technology
BFST 4th Year 1st Semester Final Examination -2022
Course Title: Leadership and Food Entrepreneurship Development (Theory)
Course Code: FED-401(T)
Total Marks: 35, Time: 2.0 hours

[Answer any 3 (THREE) questions from each section where question 5 is mandatory. Figures in the right margin indicate full mark. Use separate answer script for each section]

SECTION-A

1. a. Define the concept of entrepreneur and entrepreneurship. Briefly discuss the functions of a food entrepreneur.   1+3=4

   b. Write the difference between entrepreneur and intrapreneur?   2

2. a. Briefly narrate the scope of agro-based food entrepreneurship development in Bangladesh.   3

   b. Discuss the role of NGOs in rural entrepreneurship development.   3

3. a. Briefly discuss the discounted project appraisal techniques.   4

   b. What are the barriers of food entrepreneurship?   2

4. a. What are the challenges of involving rural women in agri-entrepreneurship development?   4

   b. Narrate the prospect of women entrepreneurship in Bangladesh.   2

SECTION-B

5. a Distinguish between leader and leadership. Write the importance leadership in context of entrepreneurial development.   1+2=3

   b "Leader is a change maker"- explain.   2

6. a Briefly discuss the qualifications of a good leader.   4

   b Do you think that leadership and entrepreneurship are linked? Explain   2

7. a Define opinion leadership. Narrate the leadership styles in rural Bangladesh.   1+2=3

   b Mention the comparison between professional leader and local leaders.   3

8. Write short notes on: (any three)   (2x3) =   6
   (i) EntrepreneurialMobility; (ii) Entrepreneurial Growth; (iii) Gender-based discrimination in Entrepreneurship Development ; (iv) SWOT analysis.

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 4th year 1st Semester Final Examination, 2022
Course Title: Epidemiology and Public Health (Theory)
Course Code: EPH-401 (T)

Full Marks: 70   **Time: 3 Hours**

(Figures in the right margin indicate full marks. Answer four (4) questions from each section where question number 1 and 6 are compulsory. Use separate answer script for each section. Fractions of the questions must be answered together.)

SECTION-A

1.	a)	According to WHO what is the definition of epidemiology?	02
	b)	How Iodine deficiency disease was controlled in Ohio, USA?	03
2.	a)	Enlist the types of study used in epidemiology.	02
	b)	List the focusing fields of epidemiology with example.	02
	c)	Define odd ratio. Which study design is the best among all analytical studies?	1+5=06
3.	a)	Why John Snow is called the father of field epidemiology?	01
	b)	Discuss the John Snow study in the Golden Square area of London.	06
	c)	Write down some strengths and weakness of the RCT study.	03
4.	a)	Define medical ethics. Explain the four principles of ethics.	1+4=05
	b)	Differentiate the validity and reliability.	04
	c)	What does the choice of study design depend on?	01
5.	a)	Define outbreak. List the objectives of outbreak of investigation.	1+2=03
	b)	Describe the epidemiological steps outbreak investigation.	07

SECTION-B

6.	a)	Differentiate between survey and surveillance.	02
	b)	Classify different epidemiological bias with example.	03
7.	a)	Define population, sampling unit, and sampling frame.	03
	b)	How do you determine the sample size for your study?	03
	c)	Describe simple random sampling method (SRS).	04
8.	a)	Explain confounding factors with examples.	02
	b)	How do you control confounding in epidemiological studies?	03
	c)	Briefly explain the potential sources of selection bias used in epidemiological study.	05
9.	a)	What is hard immunity and how does it develop?	03
	b)	Briefly describe different types of causative agents responsible for infectious disease.	03
	c)	Illustrate the models of transmission of the causative agents to a new host.	04
10.	a)	What is screening? Write down the principle of screening.	1+3=04
	b)	Write down the types of nutritional surveillance.	03
	c)	What is lead time bias and length bias in the screening program?	03

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 4th Year 1st Semester Final Examination, 2022
Course Title: Renewable Energy in Food Processing (Theory)
Course Code: RFP- 401(T)

Full Marks: 70   **Time: 3 Hours**

(Figures in the right margin indicate full marks. Answer four (4) questions from each section where question number 1 and 6 are compulsory. Use separate answer script for each section. Fractions of the questions must be answered together.)

SECTION-A

1. a) What do you mean by Renewable and Non-renewable energy? **2**
   b) How does the future direction of human life depend on efficient use of Renewable energy? **3**

2. a) Describe the essential scientific principles for a successful Renewable energy system. **5**
   b) Explain the technological and non-technological barriers and drivers for renewable energy deployment. **3**
   c) Write short notes on the following energy sources: (i) Coal, Oil, Natural gas (ii) Nuclear energy **2**

3. a) How could you efficiently utilize renewable energy in Bangladesh for food processing? **3**
   b) If the fluid inlet temperature were equal to the ambient temperature, then derive an expression for the instantaneous efficiency for a flat-plate collector. **5**
   c) Write down the difference between solar radiation and solar spectrum. **2**

4. a) Draw a clear diagram of horizontal axis wind turbine and explain the operation detail for producing electricity. **6**
   b) An industry wants to install a wind turbine to generate energy of 50000 kWh. The wind speed at the location is 7 m/s at a height of 10 meters from the ground. Which turbine would you suggest to the industry? Co- efficient of performance, C_p = 0.40, transmission losses (rotor to generator) = 0.90, generator losses = 0.90 and capacitor factor = 0.30. **4**

5. a) "Biomass is a renewable energy source"- justify your answer. Explain the different types of biomass resources with applications. **4**
   b) Give an explanation of the factors responsible for biomass fuels to be useful sources for energy production. **6**

SECTION-B

6. a) What is the solar cooker? On which principle does the solar cooker work? **2.5**
   b) What is the difference between direct and diffuse solar radiation? **2.5**

7. a) Describe principle of operations of a solar pond. **5**
   b) How is solar cell distinguished from photocell? Briefly describe the applications of solar PV system. **5**

8. a) What do you mean by the term "Coefficient of Performance" for a wind turbine? Explain Betz criterion and using this concept show that, the Coefficient of Performance for a wind turbine is 59% maximum. 7

   b) What do you mean by the term "Tip Speed Ratio or TSP" for a wind turbine machine? Derive an expression for the optimal rotational frequency of rotor blades in a wind stream to extract maximum power. 3

9. a) Draw the schematic of a simple tidal energy conversion plant to explain the mechanism of generation of electricity from tide. 5

   b) Calculate the potential that can be developed from a tidal barrage power generation plant from the following specifications: the tidal range (the head) of tide at the location is 32 feet ($\approx$ 10 m), The surface area of the tidal energy harnessing plant is 9 square kilometers, and Density of sea water is 1025.18 kg /m^3. Also calculate the daily-average power generation if the conversion efficiency of the plant is 30%. 5

10. a) Explain the construction details and working principle of a solar distillation unit. Hence, mention the parameters affecting the solar still performance. 5

   b) How can we produce electricity from geothermal resources? Mention the working principles for electricity production in different power plants. 5

Chattogram Veterinary and Animal Sciences University
Faculty of Food Science & Technology
BFST 4th year 1st Semester Final Examination, 2022
Course Title: Refrigeration and 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 four (4) questions from each section where question number 1 and 6 are compulsory. Use a separate answer script for each section. Fractions of the questions must be answered together.)

SECTION-A

1. What is the role of a food engineer in the design of refrigeration and air conditioning of a food industry? **5**

2. a) What is defrosting? Briefly describe the operational conditions of the five defrosting methods. **1+4=5**

   b) Compare the Total equivalent warming impact (TEWI) effect of thrice the charge and alternatively adding 15% energy consumption for a medium temperature 13.5 KW, R-134a installation consuming 6 KW electric power for 5000 h/year. Use the following data: **5**

   GWP (Global warming potential): 1430 kg CO_2/kg, Leakage rate per year= 2 kg/10 kg, Number of years in operation=10 years, Refrigeration charge =15 kg, Recycling factor =0.75, CO_2 emission factors= 0.42 Kg CO_2/KWh.

   Taking case a) as the baseline, with b) for additional charge and c) for additional energy.

3. a) What do you mean by refrigeration? What is the relationship between refrigeration and air conditioning? Explain. **1+4=5**

   b) What are the characteristics features of a good refrigerant with designation system? **5**

4. a) Explain the basic principles of refrigeration. **3**

   b) Describe the vapour compression refrigeration system with a neat diagram, advantages, and application. **4**

   c) How does a centrifugal compressor work? Briefly explain the mechanism with a skeleton diagram. **3**

5. a) Explain with a block diagram the working principles of a practical Ammonia-Water vapour refrigeration system. What are the advantages of replacing the compressor with absorber and generator? **2+3=5**

   b) A vapor-compression refrigeration system, using R-134a is being used to keep a food storage room under desired cold temperatures. At steady state conditions, the evaporator temperature is 0°C, and the condenser temperature is 45°C. The cooling load on the refrigeration system is 10 tons of refrigeration. Calculate: **5**

   i) Draw the refrigeration cycle on a pressure–enthalpy diagram for R-134a.

   ii) Determine the corresponding enthalpy of the refrigerant at the exit from the condenser, at the beginning of the compression stroke, and at the end of the compression stroke.

   iii) Calculate refrigerant flow rate.

   iv) Calculate compressor power if the compressor efficiency is 80%.

   v) Calculate the coefficient of performance (COP).

   vi) Repeat the above example assuming the vapors entering the compressor are superheated by an additional 10°C and the liquid refrigerant entering the expansion valve is supercooled by an additional 5°C. Explain the influence of superheating and subcooling on the refrigeration flow rate, compressor power requirement, and COP.

   NB. A pressure enthalpy chart for a vapour-compression refrigeration cycle for KLEA 134a must be provided to students with question.

SECTION-B

6.   A conference room is to be maintained at a temperature of 25°C dry bulb and 19°C   5
wet bulb temperatures. The sensible heat load is 88 kW and 58 kg per hour or
moisture must be removed. Air is supplied to the lecture theatre at 18°C. Determine
(i) the mass flow rate of supply air,
(ii) the relative humidity, dew point, and wet bulb temperatures of the supply air,
(iii) the latent heat load, and
(iv) the sensible heat ratio.
**NB. A Psychrometric chart at Barometric pressure 101.325 KPa (Sea level)
must be provided with questions.**

7. a)   Write a short note on the nomenclature of fully saturated halogenated, inorganic,   3
zeotropic, and azeotropic refrigerants.

    b)   What are the types of expansion valves? Explain the working principles of the   1+2=3
thermostatic expansion valve.

    c)   Atmospheric air at normal pressure having DBT 12°C and WBT 8°C enters the   4
heating coil whose temperature is 40°C. The bypass factor of the heating coil is 0.3.
Determine psychrometric properties of air leaving the coil and sensible heat added.
NB. A Psychrometric chart at Barometric pressure 101.325 KPa (Sea level) must be
provided to students with questions.

8. a)   Discuss the different psychrometric processes that can be achieved by using an air   6
washer.

    b)   Write a short note on the followings: 1x4=4
i) COP,
ii) Super-cooling,
iii) Sub-cooling,
iv) Ton of refrigeration.

9. a)   Discuss the following statement: "Refrigeration can be achieved by expansion of a   2
gas or throttling of gas".

    b)   What are the important air properties that should be taken into consideration in the   4
design of an air conditioning system?

    c)   What is Effective temperature? Describe the factors governing optimum effective   1+3=4
temperature.

10.   How do you design different air conditioning systems for summer, winter, and year-   10
round by considering the requirements of human comfort as well as atmospheric air
condition?

CHATTOGRAM VETERINARY AND ANIMAL SCIENCES UNIVERSITY
Faculty of Food Science and Technology
BFST 4th Year 1ˢᵗSemester Final Examination -2022
Course Title: Marketing of Food Products and Business Management (Theory)
Course Code: MFP-401(T)
Total Marks: 70, Time: 3.0 hour

[Answer any 3 (Three) questions from each section where question 1 and question 5 are mandatory. Figures in the
right margin indicate full mark. Use separate answer script for each section]

SECTION-A

1. a) Define agribusiness management. Explain basic functions of management   3
    b) List down 14 principles of management and describe any four principles.   4
    c) Explain different elements of business and marketing   4

2. a) Define planning along with its characteristics.   4
    b) Explain in what ways effective planning supports marketing of food products in Bangladesh   4
    c) Point out and describe the areas where an agribusiness plan is different from a typical business plan.   4

3. a) Define organizing and organizational structure.   2
    b) Narrate the purpose of a business plan.   3
    c) Explain the factors to be considered in formulating a sound plan   3
    d) What are some sustainable farming practices and certifications relevant to food marketing?   4

4. Suppose you are a newly recruited Marketing Manager of a well-reputed food company.
    a) Describe the factors that you will consider while recruiting salespeople for one of your underperforming food products.   5
    b) Provide some ideas on how to motivate your newly recruited salespeople so that they will be interested to take challenges and achieve their targets.   7

SECTION-B

5. a. Distinguish between marketing and selling. Write the importance of marketing.   1+3=4
    b. Is marketing complex and costly? -Explain.   3
    c. Briefly discuss the functionary approach of food marketing in context of Bangladesh.   4

6. a. Define marketing channel. Write the elements of marketing channel.   1+3=4
    b. What factors govern the choice of channel selectionin marketing of food products?   5
    c. How the trade channels are disrupted?   3

7. a. Distinguish between whole selling and retailing.   2
    b. Briefly discuss the merchant and agent middlemen involved in marketing   6
    c. How will you measure the efficiency of retailing?   4

8. **Write short notes on (any three):**   3x4=12
    (i) 7'C and 4 P's in marketing; (ii)Cooperative marketing system; (iii) Marketing efficiency; (iv) Fayol's principles of Management; (v) Business Information Management.