Full Marks: 40   **Time: 02 hours**

[Figures in the right margin indicate full marks. Answer four (4) questions. Split answers are discouraged.]

1. a) Write down the functions of food additive.   04

    b) Mention the name of some artificial and natural sweetener.   03

    c) Draw the structure: 03

        i)   β-Carotene

        ii) Gamma Tocopherol

        iii) Ascorbic acid or Vitamin C

2. a) Mention the name of pigments from plant sources.   02

    b) Briefly describe about the pigments from microbial sources.   05

    c) Discuss the legislation concerning the use of color in food   03

3. a) Mention the factors related in selecting a food antimicrobial agent.   03

    b) Briefly describe the properties, target microorganism and uses of Nisin as antimicrobial   05
        agent.

    c) Write down the adverse effect of nitrite.   02

4. Write short notes on:

    a) Vitamin K   03

    b) Flavor enhancer   03

    c) Synergistic antioxidant   04

5. a) What is acidulant?   02

    b) Mention the name of commonly used acidulants and briefly describe their functions.   04

    c) Write down the microbial function and toxicology of propionic acid.   04

Chattogram Veterinary and Animal Sciences University
MS in Food Chemistry and Quality Assurance
January- June Semester Final Examination-2024
Course Title: Waste Management in Food Industry
Course Code: WMI- 501

Total Marks: 40   **Time: 2 hours**

Answer any four (04) questions. Figures in the right margin indicate full marks.

1	a.	Summarize different implications of food waste.	05
	b.	How can AI be used in food waste management?	05
2	a.	Elaborate different sources of industrial waste water.	08
	b.	List down the factors which contribute waste generation.	02
3	a.	Briefly explain the methodology of QMRA.	05
	b.	Discuss different key reasons to minimize waste in food industry.	05
4	a.	Illustrate good housekeeping recommendations for different food industries to reduce waste.	07
	b.	Differentiate the following terms: by-product, co-product and waste materials.	03
5	a.	Briefly explain the existing legislations on waste management in Bangladesh.	05
	b.	Explain different types of functional byproducts available in fruits and vegetables.	05

Chattogram Veterinary and Animal Sciences University
MS in Food Chemistry and Quality Assurance
January- June Semester Final Examination-2024
Course Title: Food Toxicology
Course Code: FTO- 501

Total Marks: 40   **Time: 2 hours**

Answer any four (04) questions. Figures in the right margin indicate full marks.

1	a.	Summarize the following terms- exotoxin and endotoxin.	05
	b.	Explain the principles of toxicology.	05
2	a.	Differentiate food intoxication and food infection.	03
	b.	Elaborate different types of toxins found in food.	07
3	a.	How do you prepare sample for the determination of toxicants in food?	04
	b.	Illustrate the mechanisms of immunological food hypersensitivity.	06
4	a.	Recall food hypersensitivity with example.	02
	b.	Elaborate different types of common food allergy.	07
5	a.	Write short notes on PCBs and PCDDs.	05
	b.	Explain common toxicity mechanisms and sites of action of heavy metals.	05

Chattogram Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (January-June, 2024)
Subject: Food Analysis and Instrumentation
Course Code: FAI-501

Full Marks: 40   **Time: 02 hours**

[Figures in the right margin indicate full marks. Answer four (4) questions. Split answers are discouraged.]

1. a) Discuss about characteristics of sample and different types of sampling techniques.   05

   b) What is proximate analysis? Rewrite principle of protein determination by Kjeldahl method.   05

2. a) Define sensory analysis. Reproduce principles of sensory analysis.   05

   b) Discuss in brief about triangle test of sensory evaluation.   05

3. a) What is mass spectrometry? List down the instrumentation and application of mass spectrometry.   06

   b) Rewrite applications of Differential Scanning calorimetry in different sector.   04

4. a) What is refractive index? Mention advantages and disadvantages of using refractometer in food industry.   06

   b) Mention ultrasound techniques used in various food products.   04

5. Write a short note on the following   05+05

   i) Texture analysis in foods

   ii) Electrophoresis

Full Marks: 40   **Time:02 hours**

[Figures in the right margin indicate full marks. Answer four (4) questions. Split answers
are discouraged.]

1. a) What is food chemistry? Deduce the relationship between moisture content and water   05
        activity.

    b) Briefly discuss chemical properties and functional properties of minerals.   05

2. a) Classify carbohydrate and illustrate the chemistry of enzymatic browning reaction.   05

    b) What is resistant starch? Rewrite health benefits of resistant starch.   05

3. a) Define denaturation of protein. Illustrate the reasons and characteristics of denaturation   05
        of protein.

    b) Reproduce the mechanism of gel formation along with the factors influencing gelation.   05

4. a) Recall the term rancidity. Enumerate on its classification and prevention technique.   05

    b) Why are modification of fats and oils done? Summarize nutritional aspects of natural and   05
        modified fats.

5.   Write a short note on the following   05+(

        i)   Vitamin

        ii)   Enzyme

Chattogram Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (January-June, 2024)
Subject: Food Quality Management
Course Code: FQM-501

Full Marks: 40   **Time: 02 hours**

[Figures in the right margin indicate full marks. Answer four (4) questions. Split answers are discouraged.]

1. a) Mention the functions of QA department.   03

   b) Write down the difference between QC and QA.   03

   c) Discuss the fourteen stages of HACCP.   04

2. a) Write down the types and causes of food adulteration.   04

   b) Briefly describe the food adulteration in developing countries.   03

   c) Discuss the methods of food adulteration.   03

3. a) Explain the difference test for sensory analysis.   04

   b) Write down the uses of sensory analysis in the food industries.   03

   c) Briefly describe the three components of flavor in sensory analysis.   03

4. a) Draw a chart mentioning the methods of determining quality.   02

   b) Describe the common chemical tests used for food products.   04

   c) Write short note on "Certification and Accreditation".   04

5. a) Write down the purpose and advantages of control chart.   03

   b) Describe in details about the control chart for variables and attributes. 05

   c) Categorize the types of auditing.   02