

**Chattogram Veterinary and Animal Sciences University**  
**Department of Applied Chemistry and Chemical Technology**  
**M.S. in Food Chemistry & Quality Assurance (July-December, 2023)**  
**Subject: Food Quality Assurance**  
**Course Code: FQA-502**

**Full Marks: 40**

**Time: 02 hours**

Figures in the right margin indicate full marks. Answer **four (4)** questions. Split answer is not allowed.

1. a) What is sensory analysis? Discuss about the advantages and disadvantages of sensory analysis. 06
- b) Discuss about different categories of sensory analysis tests. 04
2. a) What do you mean by Quality Assurance? Discuss in brief the functions of quality assurance program. 05
- b) Illustrate on principals of quality management. 05
3. a) Rewrite principles and applications of gas chromatography. 05
- b) Write down advantages, disadvantages and application of HPLC. 05
4. a) What is UV visible spectrophotometer? Write down its key components and working principle. 05
- b) List down instrumentation of AAS and its application. 05
5. Write a short note on the following:- 3.5+3.5+3=10  
    HACCP, Refractive Index, ANSI

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**M.S. in Food Chemistry & Quality Assurance (July-December, 2023)**  
**Course Title: Food Quality Control**  
**Course Code: FQC– 502**

**Full Marks: 40**

**Time: 02 hours**

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

- |   |  |              |
|---|--|--------------|
| 1 | a) What is quality? Write down the principles of quality control.                              | 06           |
|   | b) Enumerate on the biological basis of food quality control                                   | 04           |
| 2 | a) Illustrate the chemical methods for determining microorganism in food.                      | 06           |
|   | b) Rewrite its advantages, disadvantages and application of this method.                       | 05           |
| 3 | a) Discuss in brief cultural method for determining microorganism in food.                     | 06           |
|   | b) Mention the advantages, disadvantages and application of this method.                       | 04           |
| 4 | a) What is Deming Cycle? List down Deming's 14 points for total quality management.            | 06           |
|   | b) Define Total Quality Management. Mention its principles and application.                    | 04           |
| 5 | Write a Short note on the following:-<br><br>BSTI, National Food Safety Laboratory, ISO: 22000 | 3.5+3.5+3=10 |

**Chattogram Veterinary and Animal Sciences University**  
**Department of Applied Chemistry and Chemical Technology**  
**M.S. in Food Chemistry & Quality Assurance (July-December, 2023)**  
**Subject: Research Methodology and Case Studies**  
**Course Code: RMS-502**

**Full Marks: 40**

**Time: 02 hours**

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

1. a) Define research and research methodology. 02  
b) Make a difference between primary and secondary data. 03  
c) What do you mean by hypothesis and null hypothesis? 02  
d) Classify and describe research according to inquiry mood. 03
2. a) Mention the ethical issues relating to the researcher. 02  
b) Enlist the written research project report format. 04  
c) What are the general purposes of literature review? 02  
d) Why tabulation is essential for data processing operations? 02
3. a) What are research instruments? Mention the types of research instruments. 02  
b) Enlist the advantages and disadvantages of records. 03  
c) Draw a flowchart mentioning the types of sampling. 03  
d) Write down the steps in research problem. 02
4. a) Describe a complete process for writing a research proposal. 04  
b) What do you mean by patents? Why are patents necessary? 02  
c) Write some advantages of literature survey. 02  
d) When to do a case study? 02
5. Write short notes on: 10
  - a) Check List.
  - b) Interview.
  - c) Observation.
  - d) Experimental Approach.
  - e) Distribution

**Chattogram Veterinary and Animal Sciences University**  
**MS in Food Chemistry and Quality Assurance**  
**July- December Semester Final Examination-2023**  
**Course Title: Food Safety and Risk Analysis**  
**Course code: FSA- 502**

**Total Marks: 40**

**Time: 2 hours**

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

- |   |    |  |    |
|---|----|--|----|
| 1 | a. | How are risks ranked?  | 04 |
|   | b. | Illustrate different types of potential hazards in the food manufacturing workplaces.                                  | 06 |
| 2 | a. | Elaborate the principles of HACCP.   | 06 |
|   | b. | How do you apply HACCP principles?   | 04 |
| 3 | a. | Highlights the clauses of ISO 22000.   | 02 |
|   | b. | Differences between hazard analysis and risk assessment in risk analysis.  | 03 |
|   | c. | Briefly explain the importance and benefits of a Food Safety Management System (FSMS).                                 | 05 |
| 4 | a. | Why seek compliance to ISO 22000?  | 03 |
|   | b. | List the scopes of FSMS in bakery industry.  | 02 |
|   | c. | What are the key management responsibilities in ensuring the effectiveness of a Food Safety Management System?         | 05 |
| 5 | a. | What are the importance of communication in Food Safety Management System?   | 05 |
|   | b. | What are the key components of an effective prerequisite program for ensuring food safety in a manufacturing facility? | 05 |

**Chattogram Veterinary and Animal Sciences University**  
**MS in Food Chemistry and Quality Assurance**  
**July- December Semester Final Examination-2023**  
**Course Title: Product Development and Project Management**  
**Course code: PDM- 502**

**Total Marks: 40**

**Time: 2 hours**

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

- |   |    |  |    |
|---|----|--|----|
| 1 | a. | Briefly explain the principles of project management.          | 05 |
|   | b. | Elaborate the life cycle of a project.                         | 05 |
| 2 | a. | Briefly explain the basic elements of project management.      | 05 |
|   | b. | How do you measure the success of a project?                   | 05 |
| 3 | a. | Briefly explain stage-gate processes.                          | 05 |
|   | b. | Criticize about stage-gate process.                            | 05 |
| 4 | a. | How do you evaluate a project by SWOT?                         | 05 |
|   | b. | Summarize the roles and responsibilities of a project manager. | 05 |
| 5 | a. | Elaborate the basic steps of stakeholder analysis.             | 05 |
|   | b. | Design the basic phases of project management.                 | 05 |

**Chattogram Veterinary and Animal Sciences University**  
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**M.S. in Food Chemistry & Quality Assurance (July-December, 2023)**  
**Subject: Applied Engineering Chemistry**  
**Course Code: AEC-502**

**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 do you mean by fluid? 02  
b) Briefly describe the types of fluid. 05  
c) What do you mean by Mach number? How will you classify compressible and incompressible fluid according to Mach number? 03
2. a) Write down the factors influencing the choice of pump. 03  
b) Illustrate with figure the mechanism of cavitations. 05  
c) Briefly describe the pump characteristics curve. 02
3. a) Make a chart mentioning the classification of heat exchanger. 02  
b) Describe with construction, advantages, application and example of scraped-surface heat exchanger. 06  
c) Describe the pitfalls of plate heat exchanger. 02
4. a) What do you mean by material balance? 02  
b) Write down the procedure for material balance calculation. 04  
c) A common salt solution contains 24% NaCl and 76% water. To recover 80% of the dissolved salt, it is proposed to evaporate a part of the water and then carry out crystallization at a temperature 20° C. At 20° C the solubility of NaCl in water is 36 g/100 g of water. Calculate 04
  - i) The wt. of water evaporated per 1000 kg of solution.
  - ii) The wt. of mother liquor left after crystallization.
5. Write short notes on (Any two): 10
  - a) Tubular heat exchanger
  - b) Reciprocating pump
  - c) Properties of Fluid