

Chattogram Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2022)
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 discouraged.]

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|---|---|-----------|
| 1 | a) Discuss in brief principles of quality control. | 06 |
| | b) Enumerate on the biological basis of food quality control. | 04 |
| 2 | a) Discuss briefly different standard plate count method for microorganism detection in food. | 07 |
| | b) Write in brief about statistical quality control in food industry. | 03 |
| 3 | a) Write down principle of Nuclear Magnetic Resonance (NMR) spectroscopy along with its advantages and disadvantages. | 05 |
| | b) Write down the uses of UV spectroscopy in food testing. | 05 |
| 4 | a) What is Deming Cycle? List down Deming's 14 points for total quality management. | 05 |
| | b) Define Total Quality Management. Mention its principles, advantages and disadvantages. | 05 |
| 5 | Write a Short note on the following:

BSTI, National Food Safety Laboratory (NFSL), ISO: 22000 | 3.5+3.5+3 |

Chattogram Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2022)
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
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2022)
Subject: Food Safety and Risk Analysis
Course Code: FSA-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 ISO-22000 and ISO 15161:2001? 02
b) What are the requirements and benefits of ISO-22000? 04
c) Describe two principles of food safety management system. 04
2. a) What is HACCP? Draw a logic sequence for the application of HACCP. 05
b) What are benefits of applying HACCP in food industries? 05
3. a) Define risk management. 02
b) Draw a model for risk management. 04
c) What are the factors that influence the perception of risk? 04
4. a) Define risk communication. 03
b) What are the goals of risk communication? 03
c) Draw the pathway of communicating risk. 04
5. Write a short note on the following: 10
 - i) Food adulteration in Bangladesh
 - ii) Current challenges of food safety with respect to rapid growth of population

Chattogram Veterinary and Animal Sciences University
MS in Food Chemistry and Quality Assurance
July- December Semester Final Examination-2022
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.

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|---|----|---|----|
| 1 | a. | Explain the principles of project management. | 05 |
| | b. | Elaborate some characteristic attributes of a project. | 05 |
| 2 | a. | Briefly discuss the stages of new food product development. | 07 |
| | b. | What are the drivers of innovative products. | 03 |
| 3 | a. | Elaborate different methods of grouping food products. | 07 |
| | b. | Briefly explain the stages of Stage-Gate model. | 03 |
| 4 | a. | How do you measure product success and failure rate in a food industry? | 07 |
| | b. | Elaborate the merits of stage-gate process. | 03 |
| 5 | a. | Elaborate the basic steps of stakeholder analysis. | 05 |
| | b. | How do you evaluate a project by SWOT? | 05 |

Chattogram Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2022)
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 different quality of food those are analyzed by 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) Discuss about physical methods for measuring physical properties of food. 05
3. a) What is chromatographic analysis? Write down principles and application of chromatographic analysis. 05
- b) Write down principles and application of HPLC. 05
4. a) What is FT-IR spectroscopy? Write down its advantages and disadvantages. 05
- b) Discuss in brief barriers and prospects of research and development sector in food industries of Bangladesh. 05
5. Write a short note on the following: 3.5+3.5+3=10
HACCP, Refractive Index, ANSI

Chattogram Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2022)
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) Why material and energy balance calculations are necessary? Briefly discuss the procedure of material and energy balance calculations. 06
- b) What is meant by limiting and excess reactants? Give example and discuss the idea of stoichiometry. 04
2. A 60-40 mixture (by moles) of A and B is separated into two equal flow fractions. The top fraction bears 95% mol A/mol while the bottom fraction contains 12.5 mol & 37.5 mol A & B respectively. Complete the flow diagram and calculate the flow pattern for 2000 moles/hr continuous feed. 10
3. A brine solution contains 24% NaCl salt. To recover 80% of the dissolved salt, it is proposed to evaporate a part of water and then carry out crystallization at a temp. of 20 °C. The solubility of NaCl in water at that temperature is 36 g/100g of water. Calculate the weight of water evaporated per ton of solution. And also the weight of mother liquor left after crystallization. 10
4. a) Why pumps are used in food industries? Discuss about the pump characteristics curve. 04
- b) Write the working principle of centrifugal and reciprocating pumps. What are the advantages and disadvantages of these type of pumps? 06
5. a) Sketch a schematic of a 2,4-Shell & Tube heat exchanger. 06
- b) What are the advantages of Shell & Tube heat over plate type/ scraped surface heat exchanges. 04