

Chittagong Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2016)
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 Quality Control and Quality Assurance? Discuss with reasonable example. 4
- b) Discuss about the importance of the following in Quality Assurance Program 6
 - i) Monitoring and Documentation
 - ii) Operator Hygiene
2. a) Define the following term 4.5
Hazard, Control Measure, CCP, Risk, Safety, Severity
- b) Draw the logic sequence for the application of HACCP. 2
- c) Draw a decision tree for identification of CCPs. 3.5
3. a) What is Total Quality Management? Shortly discuss primary elements of TQM. 4
- b) Discuss briefly Quality Assurance System in food industries in Bangladesh. 3
- c) Discuss Research and Development prospects in food sector. 3
4. a) How does pH play a critical role throughout the processing stages in the food industry? 3
- b) Discuss application of titrimetry in food and beverage industry as a quality control tool. 3
- c) Mention main principle of Chromatographic analysis. 2
- d) Write a short note on ANSI. 2
5. a) Discuss shortly physical methods used for Food Quality Assurance. 5
- b) What is GMP? Discuss basic rules required by GMP. 5

Chittagong Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2016)
Subject: Food Security
Course Code: FSE-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 Food Security? What approaches should be taken to ensure Food Security? 5
b) Discuss factors affecting access to food. 5

2. a) Discuss impact of Globalization on Food System. 4
b) Discuss problems associated with Food Security and mention some solutions to solve those problems. 6

3. a) What is Food Insecurity? Discuss factors causing Food Insecurity. 5
b) Discuss how Biotechnology can improve food production. 5

4. a) Discuss effect of climate change on the following 6
 i) Food Nutrition
 ii) Livestock
 iii) Fisheries
b) What is Phenology? Discuss impact of climate change on Phenology. 4

5. a) What is IPCC? Discuss its history and roles of IPCC. 5
b) Discuss Food Security in respect to Bangladesh. 5

Chittagong Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2016)
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 answer is not allowed.]

1. a) Write down the five principles of food safety of WHO. 3
b) Describe the present scenario of food safety in Bangladesh 7
2. a) Write down some common adulterants of food. 2
b) Enumerate five adulterants of food with their health effects. 5
c) Write a short note on: "Microbial contamination of food". 3
3. a) Define and classify risk assessment. 2
b) Figure out the steps of risk assessment process. 4
c) Discuss different characteristics of a good risk assessment. 4
4. a) What are the goals of risk communication? 4
b) Briefly describe the principles of risk communication. 6
5. a) What is risk analysis? Discuss the conditions necessary for risk analysis. 4
b) Define the following terms: 6
 - i) Risk analysis
 - ii) Risk characterization
 - iii) Stakeholders in risk communication
 - iv) HACCP
 - v) WHO
 - vi) Toxin in sea food

Chittagong Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2016)
Subject: 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 answer is not allowed.]

1. a) What do you mean by ISO 22000? Write down the key features of ISO 22000? 4
b) Write down eight principles of Quality Management System. Describe any two principles. 6
2. a) What is Deming cycle? Explain. 3
b) Draw a flow chart of Deming chain reaction. 2
c) What are the benefits of Deming cycle? 2
d) Write down six popular standards of ISO with their key words. 3
3. a) What are the primary sources of microorganisms in food? 2
b) Discuss extrinsic parameters that influence microbial growth. 4
c) Describe two conventional methods to determine the presence of microorganisms in food. 4
4. a) What is GLP? 2
b) Write down the elements of GLP. Describe any two of them. 5
c) What is GHP? What is the significance of GHP? 3
5. Write a short note (any two) 10
 - a) ISO 2
 - b) BSTI 4
 - c) WTO 4

Chittagong Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2016)
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 answer is not allowed.]

1. a) What do you mean by laminar & turbulent flow? 3
- b) A mixture containing 45% benzene (B) and 55% toluene (T) by mass is fed to a distillation column. An overhead stream of 95 wt% B is produced and 8% of the benzene fed to the column leaves the bottom stream. The feed rate is 2000 kg/hr. Determine the overhead flow rate and the mass flow rates of benzene & toluene in the bottom stream. 7
2. a) Briefly discuss about the pump characteristics curves and NPSH. 4
- b) Write the working principle of reciprocating pumps. What are the advantages of this type? 6
3. a) Discuss about Shell-&- Tube type and plate type heat exchangers. 4
- b) What are co-current & counter current flows. Figure out a 1-2 parallel-counter flow heat exchanger. 6
4. a) What is cavitation? What are the main causes of cavitation & how we can prevent this? 5
- b) Why we use series and parallel connections in pump operations? 5
5. a) Write down the water quality parameters used for drinking & waste water. 4
- b) What are the advantages and disadvantages of disinfectants? 4
- c) Why coagulation process is used in waste water treatment systems? 2

Chittagong Veterinary and Animal Sciences University
Department of Applied Chemistry and Chemical Technology
M.S. in Food Chemistry & Quality Assurance (July-December, 2016)
Subject: Product Development and Project Management
Course Code: PDM-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) How does a Stage-Gate process work? Describe all Gates in a typical Stage-Gate model. 6
b) State the merits of Stage-Gate process. 4
2. a) Define project management. Describe the five basic phases of project management. 5
b) What do you mean by SWOT analysis? Briefly describe with example of SWOT analysis. 5
3. a) What do you mean by product development? Write the stages of product development. 6
b) Describe the role of project manager. 4
4. a) Write a note on: "Test Kitchen" and "Sensory Evaluation". 6
b) What do you mean by product specification and consumer testing? 4
5. a) How can you summarize the main steps for using experimental design in new product development? 4
b) Write four drivers of innovative products. 2
c) Describe the areas for optimization of processes and parameters. 4