

**University of Ruhuna- Faculty of Technology**  
**Bachelor of Biosystems Technology Honours Degree**  
**Level 4 (Semester II) Examination, November / December - 2023**  
**Academic year 2021/2022**

**Course Unit: BSTE 4212 – Water Technology (Theory)**

**Duration: 1 hour and 30 minutes**



Read the following **instructions** carefully before answering the questions.

- Answer **All the** questions in **PART 1** and use the in the given space in the paper.
- Answer Only **Two (2)** questions in **PART 2** and use answer writing book for answering the questions in **PART 2**.
- Each question should be started with a new page.

**PART 1 – Answer All questions**

**(01)**

- I. List out **four (04)** important physical characteristics of water that must be considered when purifying drinking water. **(20 Marks)**

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- II. Mention **three (03)** changes happen to the water in the process of chemical coagulation. **(15 Marks)**

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- III. What are the main **two (02)** purposes of disinfection in water/wastewater treatment process? **(20 Marks)**

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- IV. What is the main conceptual difference in the application of activated sludge system and trickling filter system in wastewater treatment process? **(25 Marks)**

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V. Differentiate the functions of low-sand filters and rapid-sand filters. **(20 Marks)**

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**(02)**

I. Diagrammatically show the differences between the thermal-based and membrane-based in desalinization methods. **(20 Marks)**

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II. Point out the main difference between once through process and recycled process in Multi-Stage Flash distillation (MSF). **(10 Marks)**

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III. Mention **two (02)** main technical issues which can be arise in the Multi-Stage Flash distillation (MSF) system. **(20 Marks)**

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IV. Point out the main reasons for the issues mentioned in **part III**. **(20 Marks)**

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V. Briefly explain the theory behind the “Electro dialysis”. **(30 Marks)**

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## **PART 2**

### **Answer any two (02) questions (100 Marks for each question)**

- (01) Briefly discuss the importance of monitoring the characteristics of wastewater being discharged after treatment.
- (02) Compose an essay on “water conservation strategies”.
- (03) Write down short notes on followings
- I. Integrated water resources management
  - II. Forward osmosis Vs. Reverse osmosis
  - III. Positive and negative impacts of wastewater re-usage
  - IV. Membrane based methods on desalination
  - V. Multi-Stage Flash distillation

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