ourdiu.com | Shared by S. M. Nazmus Sakib Turzo

Daffodil International University
Department of Agricultural Science
Faculty of Agriculture Sciences
Mid-term Examination, Summer 2026

Course Code: 0814-1205
Section: 253 All
Full Marks: 25

Course Title: Agricultural Chemistry -I (Fertilizers, Agro Chemicals & Environmental Chemistry)
Level-Term: L-1, T-3

Teacher's Initial: MSA
Time: 1 Hour 30 Minutes

"Split answering is strictly prohibited"

1.a) Define colloids and classify colloids based on the physical state. (PLO1,CLO1,C1) 3

b) How does a colloidal system work in the purification of air by a Cottrell precipitator? (PLO1,CLO1,C1) 2

2. Rafi planted some vegetables in his garden. He knows that the soil contains nutrients and that fertilizers are sometimes added, but he does not understand how plants take up nutrients from the soil for their growth. Explain how plants uptake nutrients from the soil for their growth with proper diagrams, if needed. (PLO1,CLO2,C3) 5

3. A researcher in an agricultural laboratory receives plant and soil samples from different regions of Bangladesh to analyze the presence of alkali and alkaline earth metals. To identify and measure elements such as sodium and potassium, he uses a flame emission spectrometer. Based on this situation, explain how a flame emission spectrometer works with a schematic diagram and mention its applications. (PLO3,CLO5,C3) 5

4. We recently learned from social media that Daffodil International University has started a biogas project that will produce electricity and use the leftover material as fertilizer. Explain the full process of biogas production, including how organic waste is changed into biogas and fertilizer. Also, describe the main steps of the process and how this project can help in energy production and agriculture. (PLO2,CLO6,C4) 5

5.a) Define bioenergy. Describe the different sources of biomass used for producing bioenergy. (PLO4,CLO6,C2) 3

b) Briefly explain how biomass is converted into bioenergy. (PLO2,CLO6,C2) 2