



Department of Nutrition and Food Engineering
Faculty of Health and Life Sciences
B.Sc. in Nutrition and Food Engineering
Midterm Examination Spring 2025

Course Code: 0531-1103

Course Title: Physical, Inorganic and Analytical Chemistry

Level and Term: L-1, T-1

Section: 251 All

Course Teacher Initials: DNU, DMR, DFR

Time: 1 hour 30 minutes

Total Marks: 25

Splitting any answer is strictly prohibited

	Marks
1. (a) Explain which of the following orbital is possible or not: [CLO1; PLO1; C2] 2d, 3p, 3f and 4p.	2
(b) In periodic tables if you move left to right in Period-2 what [CLO1; PLO1; C1] change in i) atomic radius and ii) electronegativity will you expect?	3
2. (a) Explain hydrogen bond with example. [CLO1; PLO1; C3]	2
(b) What are differences between ionic and covalent bond? [CLO1; PLO1; C2]	3
3. (a) How many lone pair electrons present in O atom of H ₂ O [CLO1; PLO1; C1] and C atom of CH ₄ ?	2
(b) Write the name and symbol of Group 1 elements in the [CLO1; PLO1; C3] periodic table. Why are they called alkali metal?	3
4. (a) How much Na ₂ CO ₃ is needed to prepare 300mL of 0.25M [CLO2; PLO1; C3] Na ₂ CO ₃ standard solution?	2
(b) A compound was analyzed and found to contain 50.00% [CLO2; PLO1; C3] Na, 10.00% C and 40.00% O. Determine its empirical formula.	3
5. (a) Calculate the number of molecules of H ₂ O present in 1g [CLO2; PLO1; C3] H ₂ O.	2
(b) Find out the percent composition of Aluminum, Sulfur and [CLO2; PLO1; C3] Oxygen in Al ₂ (SO ₄) ₃ .	3