



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 |
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| 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 |