



Department of Nutrition and Food Engineering
Faculty of Health and Life Sciences
B.Sc. in Nutrition and Food Engineering
Midterm Examination Summer 2026

Course Code: 0531-1103

Course Title: Physical, Inorganic and Analytical Chemistry

Level and Term: L-1, T-1

Section: 262 All

Course Teacher Initials: DNU, DAMR, DFR, SKP

Time: 1 hour 30 minutes

Total Marks: 25

“Maintaining the order of the questions is highly encouraged”

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|---|--|-------|
| 1 | (a) Write down the symbol of all alkali and alkaline-earth metals. [CLO1,PLO1,C2] | 2 |
| | (b) Explain how i) ionization energy ii) electronegativity and iii) atomic radius changes across Group-3 in periodic table? [CLO1,PLO1,C1] | 3 |
| 2 | (a) Write down the electronic configuration of the following elements: (i) Cu (ii) Fe [CLO1,PLO1,C3] | 2 |
| | (b) What are isotopes, isobars, and isotones? Give an example for each of them. [CLO1,PLO1,C2] | 3 |
| 3 | (a) What are the characteristics of Ionic Bond? [CLO1,PLO1,C1] | 2 |
| | (b) Find out the types and chemical bond from following compound (a) NH_4^+ (b) CO (c) $\text{H}_2\text{O} \cdots \text{H}_2\text{O}$ (d) O_3 (e) NH_3 (f) MgCl_2 [CLO3,PLO2,C3] | 3 |
| 4 | (a) How many molecules are present in 25g of H_2SO_4 . [CLO2,PLO1,C1] | 2 |
| | (b) A 200mL solution has 30g substance dissolved in it, and its molarity is 0.5. What is the molecular mass of the solute in the solution? [CLO2,PLO1,C1] | 3 |
| 5 | (a) Determine the Oxidation State of the central atom of the following compounds: i) P in NaPO_3 (ii) B in NaBH_4 (iii) Cr in $\text{K}_2\text{Cr}_2\text{O}_7$ (iv) P in H_3PO_4 [CLO2,PLO1,C3] | 2 |
| | (b) Find out the percentage composition of Na, H, C, O from NaHCO_3 . [CLO2,PLO1,C3] | 3 |