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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"

				Marks
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)$H_2O..H_2O$ (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 K_2CrO_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