

Name:			
Enrolment No:			
UPES End Semester Examination, December 2023			
Course: Elements of Geochemistry Program: B Sc Geol (H) Course Code: PEGS 2036		Semester: III Time : 03 hrs. Max. Marks: 100	
Instructions: Attempt all questions. Internal choice is given in Q7 and Q11.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Define pH of an aqueous solution.	4	CO1
Q2	Define Heisenberg uncertainty principle.	4	CO1
Q3	Describe in brief geochemical behavior of Aluminum.	4	CO1
Q4	Distinguish between phase and component in a thermodynamic system.	4	CO1
Q5	List and define various constituents of hydrosphere.	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q6	Elaborate in detail the role of atmosphere in making earth a livable planet.	10	CO2
Q7	Distinguish between shell and orbital of an atom. OR Enumerate features of ionic bond and explain how ionic bond is different from covalent bond.	10	CO2
Q8	Define electronegativity and discuss its variation across rows and columns of periodic table.	10	CO3
Q9	Describe fractionation of olivine from silicate melt with help of forsterite-fayalite phase diagram and illustrate the variation of olivine crystal and melt composition with decrease of magma temperature.	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q10	Describe in detail Goldschmidt classification of elements and evaluate the rationale of classification of elements into groups and periods.	20	CO4
Q11	Evaluate and assess in detail the principle of radiometric dating of rocks with radiogenic isotopes. OR	20	CO5

	Evaluate the role of catalysts in reaction kinetics and elaborate how catalytic converters reduce air pollution.		
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