



Name:

Enrolment No:

UPES

End Semester Examination, May 2023

Course: Physics and Chemistry of Earth

Program: B.Sc. Physics, Chemistry & Mathematics

Course Code: PEGS 1007G

Semester: II

Time : 03 hrs.

Max. Marks: 100

Instructions: All questions are compulsory in all the sections; however, internal choice is given in Q 11 (Section C).

SECTION A

(5Q × 4M = 20Marks)

S. No.	Question	Marks	CO
Q 1	List significance of Geochemistry.	04	CO2
Q 2	Classify continental plains.	04	CO1
Q 3	Define conditions of development of hanging valleys.	04	CO1
Q 4	Explain secondary shorelines.	04	CO1
Q 5	Given that δ values of liquid water (lw) and water vapor (wv) in equilibrium at 10°C are: $\delta^{18}\text{O}_{\text{lw}} = -0.80\text{‰}$, and $\delta^{18}\text{O}_{\text{wv}} = -10.79\text{‰}$. Calculate the values of $\delta_{\text{lw-wv}}$ and the fractionation factor $\alpha_{\text{lw-wv}}$ at 10°C.	04	CO3

SECTION B

(4Q × 10M = 40 Marks)

Q 6	Discuss about Glacial morphology, providing definition, its formation and types.	10	CO1
Q 7	Describe about abundance of elements in solar system.	10	CO2
Q 8	Discuss the cause of magnetism in crustal rocks.	10	CO4
Q 9	Explain about Earth's magnetism, describing mechanism or origin, variations, its components, inclination and declination.	10	CO4

SECTION-C

(2Q × 20M = 40 Marks)

Q 10	Describe in detail about formation and growth of Earth's Crust, Mantle and Core.	20	CO2
Q 11	Critically examine any one of the following: a. Nucleosynthesis or Origin of Elements b. Stable isotopic fractionation, providing its significance, cause, mechanism, fractionation factor and delta notation.	20	CO3