Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Earth Science **Semester : VI**

Program: B.Tech (Sustainability Engineering) **Time : 03 hrs.**

Course Code: SUEN3006 **Max. Marks : 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	List the components of soil, including their characteristics and functions in the environment.	**4**	**CO1**
Q 2	Define meteorites and explain how their study contributes to our understanding of the early solar system and its formation.	**4**	**CO2**
Q 3	Describe volcanic gases, detailing their composition and explaining their environmental impact and effects on life.	**4**	**CO2**
Q 4	Explain Earth's position in the solar system, highlighting its unique characteristics.	**4**	**CO2**
Q 5	Illustrate and explain the slow oxygen cycle, outlining the processes involved and its significance to life on Earth.	**4**	**CO2**
SECTION B **(4Qx10M= 40 Marks)**			
Q 6	Apply the concept of global evaporation by estimating the mass of water evaporated annually and calculating the latent heat energy required, given the global annual evaporation volume of 500,000 km^3 and the latent heat of vaporization 2260 kJ/kg.	**10**	**CO3**
Q 7	Analyze and classify soils based on their formation, composition, and characteristics, and evaluate the major types of soils found in different climatic regions, discussing their agricultural significance.	**10**	**CO4**
Q 8	Evaluate the rise of oxygen during Earth's early evolution, analyzing its sources, the processes that led to its accumulation, and the impact on the atmosphere and early life forms.	**10**	**CO4**
Q 9	Apply the concept of eustasy by defining it and analyzing the causes and effects of eustatic sea-level changes, explaining their significance in understanding past and present climatic conditions. Or	**10**	**CO3**

	Examine the processes of continental rifting and continental collision by explaining their mechanisms in detail, analyzing the geological features formed during each process, and illustrating these features with a diagram.		
SECTION-C (2Qx20M=40 Marks)			
Q 10	Analyze the concept of the soil profile by evaluating the different soil horizons, explaining their characteristics, and illustrating their roles in soil fertility with a labeled diagram.	**20**	**CO4**
Q 11	Apply the concept of earthquakes by defining them and analyzing the different types of earthquakes, explaining the characteristics of various seismic waves and illustrating them with a labeled diagram. Or Explain the major processes of the nitrogen cycle by describing the steps involved in the atmosphere, biosphere, lithosphere, and ocean, supported by labeled schematic diagram	**20**	**CO3**