Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Green Building and Energy Efficiency **Semester:** IV
Program: B.Tech. (Civil Engineering) **Time:** 03 hrs.
Course Code: CIVL3081P **Max. Marks:** 100

Instructions: *1. Read all questions carefully before attempting.*
2. Write legibly and neatly. Illegible answers may result in less marks.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain the core principles of green building design.	**4**	**CO2**
Q 2	What are the benefits of recycling construction and demolition waste?	**4**	**CO2**
Q 3	What are the key components of a building envelope?	**4**	**CO1**
Q 4	Explain primary sources of indoor air pollutants in buildings.	**4**	**CO2**
Q 5	What are the challenges and opportunities for green building in urban versus rural areas?	**4**	**CO2**
SECTION B **(4Qx10M= 40 Marks)**			
Q 6	Can you explain what social benefits green buildings offer to communities?	**10**	**CO2**
Q 7	Evaluate some effective strategies for reducing construction waste, and how can they be implemented on a construction site?	**10**	**CO3**
Q 8	Analyze how different building materials impact indoor air quality (IAQ) in practical scenarios. What are the specific mechanisms through which these materials influence IAQ, and how do their properties and interactions with other environmental factors contribute to the overall air quality within buildings?	**10**	**CO4**
Q 9	Illustrate the effects of orientation of a building on its energy efficiency. Provide examples from real-world applications. **OR** For enhancing the energy efficiency of buildings, how can the use of reflective roofing materials be applied? Also, what specific benefits do these materials provide in terms of reducing heat absorption?	**10**	**CO3**

SECTION-C (2Qx20M=40 Marks)			
Q 10	Evaluate the long-term financial benefits of green buildings, focusing on maintenance and utility costs. Additionally, evaluate the roles that government incentives and subsidies play in the cost-benefit analysis of green buildings.	**20**	**CO4**
Q 11	Analyze the importance of green building certification and identify the main objectives of green building certification programs. How do these certifications contribute to sustainable development, and what specific goals do they aim to achieve in terms of environmental, economic, and social impacts? **OR** Analyze the criteria typically used to evaluate buildings in green certification programs. Additionally, provide a detailed explanation of some of the most widely recognized green building certification programs globally.	**20**	**CO4**