PVP 23

Code: 23CE2501

III B.Tech - I Semester - Regular Examinations - NOVEMBER 2025

GREEN BUILDINGS

(Common for ALL Branches)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.
4. All parts of Question paper must be answered in one place.

BL – Blooms Level CO – Course Outcome

PART – A

		BL	CO
1.a)	Define Green Buildings.	L1	CO1
1.b)	Mention any two Green Building rating systems applicable in India.	L1	CO2
1.c)	Who developed and supported the GRIHA rating system?	L1	CO2
1.d)	Name two typical energy-saving approaches for buildings in India.	L2	CO3
1.e)	Name few passive design strategies and active design systems.	L2	CO3
1.f)	What are the types of renewable energy sources?	L1	CO3
1.g)	List the critical steps in HVAC design.	L2	CO4
1.h)	What are the strategies for energy-efficient interior lighting?	L2	CO4
1.i)	What are the measures to improve IAQ?	L2	CO5
1.j)	Why certified wood is preferred in green buildings?	L2	CO5

PART – B

			BL	CO	Max. Marks
UNIT-I					
2	a)	Explain why India needs to adopt Green Buildings in the context of climate change and rapid urbanization.	L2	CO2	5 M
	b)	Analyze the social, environmental, and economic benefits of Green Buildings with examples.	L4	CO1	5 M
OR					
3	a)	Explain briefly the difference between conventional buildings and Green Buildings in terms of features, design and cost.	L4	CO2	5 M
	b)	Explain the different types of Green Building materials commonly used in India and their importance in sustainable construction.	L2	CO1	5 M
UNIT-II					
4	a)	Analyze the impact of the launch of Green Building rating systems on India's construction industry.	L4	CO2	5 M
	b)	Analyze the benefits experienced in existing Green Buildings in India, focusing on energy savings, water savings, and occupant well-being.	L4	CO3	5 M
OR					

5	a)	Apply the principles of optimum energy efficiency to propose modifications for an existing old building to make it more sustainable.	L3	CO3	5 M
	b)	Analyze how Green Building opportunities can align with India's climate and Sustainable Development Goals' commitments.	L4	CO3	5 M
		UNIT-III			
6	a)	Apply the principles of Green Building design to suggest modifications for an existing office building to reduce energy demand.	L3	CO3	5 M
	b)	Evaluate the effectiveness of eco-friendly captive power generation systems for medium-scale factories in India.	L5	CO5	5 M
		OR			
7	a)	Compare the energy efficiency outcomes of maximizing system efficiency vs. relying on renewable energy generation.	L4	CO3	5 M
	b)	Critically analyze how onsite sources and sinks, combined with renewable energy use, can help India meet its net-zero carbon goals.	L4	CO5	5 M
		UNIT-IV			
8	a)	Analyze the key design interventions adopted in the CII Godrej Green Business Centre that contribute to its energy efficiency.	L4	CO3	5 M

	b)	Apply energy modeling techniques to evaluate the HVAC system requirements for a commercial building.	L3	CO4	5 M
OR					
9	a)	Critically analyze the role of cooling towers in optimizing water and energy use in HVAC systems.	L4	CO4	5 M
	b)	Apply lighting design principles to propose an energy-efficient interior lighting system for a modern office space.	L3	CO4	5 M
UNIT-V					
10	a)	Analyze how non-process waste handling can be improved at construction sites to minimize environmental impact.	L4	CO5	5 M
	b)	Evaluate the balance between energy efficiency and IAQ requirements in modern HVAC system design.	L5	CO5	5 M
OR					
11	a)	Evaluate various strategies to achieve acceptable IAQ levels in densely populated office spaces.	L5	CO5	5 M
	b)	Evaluate the occupational health risks associated with Sick Building Syndrome.	L5	CO5	5 M