

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS- 2026

M.Tech-II Semester

COURSE CODE (CREDITS): 10M11CE215 (3)

MAX MARKS: 25

COURSE NAME: SUSTAINABLE DESIGN AND CONSTRUCTION

COURSE INSTRUCTOR: Akash Bhardwaj

MAX. TIME: 1 Hour 30 Min

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	Marks
Q1	(a) Draw a Solar Wall (Transpired Collector) system depicting air flows in a building.	3
	(b) Discuss the impact of orientation (south-facing) on passive solar systems.	2
	(c) Compare Sunspace and Trombe Wall based on working and efficiency.	2
Q2	(a) What is the core objective of the Solar Buildings Programme initiated by the Ministry of Non-Conventional Energy Sources (MNES)? Discuss about its component, training and awareness.	3
	(b) Examine the seasonal design features of Dilwara Bagh in Gurgaon. How do the strategies for reducing heat gain in the summer differ from the strategies for increasing heat gain in the winter?	3
Q3	If you were tasked with designing an energy-efficient residential building in a warm and humid climate like Kolkata, what specific architectural features and renewable energy systems would you incorporate based on the successes of the WBREDA and WB Pollution Control Board projects?	3
Q4	(a) When orienting a new building near the equator, on which specific walls should you place the majority of the windows to minimize excessive solar heat gain, and which walls should you avoid placing windows on? Explain giving suitable reasons.	2
	(b) You are required to draw figures showing airflow around building configurations having perpendicular building blocks versus one with angled buildings? Discuss their importance and significance.	4
Q5	You are the site manager for a new urban development with a built-up area of 25,000 m ² . Based on the C&D Waste Management Rules, 2016, what are your mandatory legal obligations regarding the utilization of processed C&D waste?	3