JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

M.Tech-I Semester (CE-Structural Engineering)

COURSE CODE(CREDITS): 25M11CE113 (3) MAX. MARKS: 15

COURSE NAME: DESIGN OF REINFORCED CONCRETE STRUCTURES

COURSE INSTRUCTORS: MR. KAUSHAL KUMAR MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*

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

Q.No	Question	CO	Marks
Q1	Explain how the bond between steel and concrete, and their similar thermal expansion, help in improving the performance of RCC structures.	1, 2	3
Q2	What are creep and shrinkage in RCC? Describe their effects on the serviceability and durability of structures.	1, 2	3
Q3.	What are carbonation, chloride ingress, and sulphate attack in RCC? Explain how they damage concrete structures.	1, 2	3
Q4.	Differentiate between normal-strength concrete and high-strength concrete in terms of stress–strain behavior, modulus of elasticity, and failure mode.	1, 2	3
Q5	What are Supplementary Cementitious Materials (SCMs)? Explain how materials like fly ash, slag, and silica fume improve the strength and durability of RCC.	1, 2	3