JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

M.Tech (SE) - I Semester

COURSE CODE (CREDITS): 25M11CE111 MAX. MARKS: 15

COURSE NAME: DESIGN OF REINFORCED CONCRETE STRUCTURES

COURSE INSTRUCTOR: Mr. Chandra Pal Gautam 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
(c) Use of calculator is allowed

Q.No	Question	CO	Marks
Q1	(i) Draw the stress and stress diagram of a singly reinforced beam with proper limits of stress and strain. (ii) Mention the conditions to categorize the beam for under reinforced, balance and over reinforced section. (iii) State the conditions under which doubly reinforced beams are designed. (iv) A designer has two alternatives; increase the beam width or increase its effective depth. Discuss which option is more effective for increasing moment capacity and why. (v) Explain the concept of effective flange width.	CO-1	5
Q2	An RCC beam of size 250 mm × 500 mm is reinforced with 4 bars of 20 mm diameter. Determine its moment of resistance and check whether the section is under-reinforced. Assume M25 and Fe415. Also Find the ultimate Moment carrying capacity of the beam.	CO-1	5
Q3	Design a simply supported reinforced concrete rectangular beam whose clear span between supports is 6 m and supported on brick walls of 300 mm thickness. The beam is subjected to imposed loads of 4.0 kN/m	CO-1	5

220