JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2022

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

COURSE CODE (CREDITS): 11M1WCE113 (3) MAX. MARKS: 15

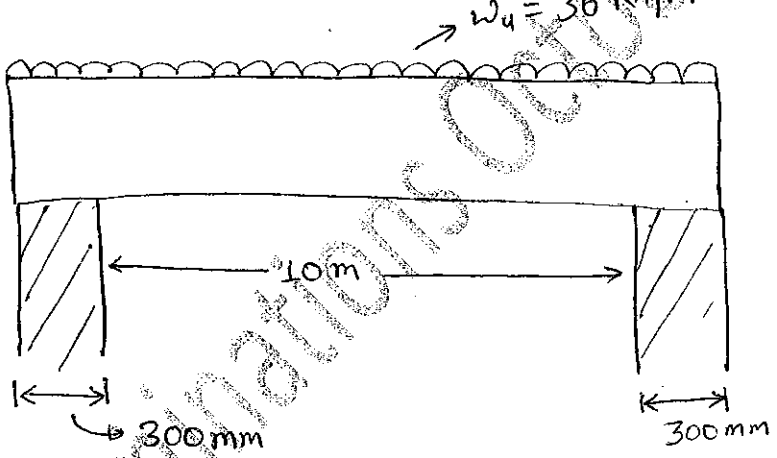
COURSE NAME: Design of Reinforced Concrete Structures

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

Note: All questions are compulsory. Marks are indicated against each question in square brackets. IS-456:2000 Code is allowed

---

Q1. A reinforced concrete beam (as shown in figure 1) is required to resist a bending moment due to combined effect of dead load and live load. Design the beam for flexure, taking $\frac{b}{d} = 0.5$. Use M20 concrete and TMT (Fe415). **[5 Marks]**



Q2. Design a rectangular beam 230 mm x 600 mm over an effective span of 5 m. The superimposed (live) load of the beam is 50 kN/m. Effective cover to the reinforcement is taken as 50 mm. Use M20 concrete and Fe 415 Steel. [unit weight of R.C.C. = 25kN/m^3] **[5 Marks]**

Q3. An Isolated simply supported T-beam has a flange width of 2400 mm and flange thickness of 120 mm. The effective span of beam is 3.6 m. The effective depth of beam is 580 mm and width 300 mm. It is reinforced with 8-20 mm diameter Fe415 bars. Determine the moment of resistance of the section. Use M20 concrete. **[5 Marks]**

----------End of Paper----------