JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-VIII Semester (~~CSE/IT/BT/ECE~~/CE)

COURSE CODE (CREDITS): 18B1WCE831 (3) MAX. MARKS: 15

COURSE NAME: ADVANCED REINFORCED CONCRETE DESIGN

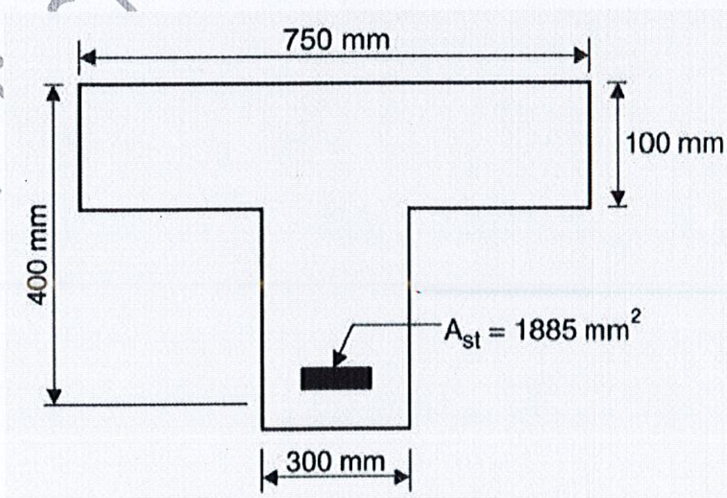
COURSE INSTRUCTOR: Dr. KAUSHAL KUMAR MAX. TIME: 1 Hour

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

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

(c) Use of calculators, IS Codes are allowed.

Q.No	**Question**	**CO**	**Marks**
Q1	State the assumptions made in the theory of elastic bending. Why do we use less factor of safety for steel as compared to concrete?	1	3
Q2	(a). What is modular ratio? (b). What is its significance in design? (c) Why it is not preferred to deign over rienforced sections?	1	3
Q3	Determine the moment of resistance of a singly reinforced beam 160 mm wide and 300 mm deep (effective). The beam is reinforced with 4 bars of 16 mm diameter. Use M15 concrete and plain mild steel bars. Take m = 18.	1	3
Q4	A rectangular beam is 360 mm x 650 mm effective carrying a bending moment 215 kNm. Calculate the tensile and compressive steel area required. Use M20 concrete and Fe 415 steel. Take $m = 13.33$ and $d' = 50$ mm.	1	3
Q5	Determine the moment of resistance of the given T-beam. Take $m = 13.33$, $\sigma_{cbc} = 7$ N/mm^2, $\sigma_{st} = 230$ N/mm^2. Neglect compression in the web.	1	3



164