JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-Nov-2025

COURSE CODE (CREDITS): 18B11CE612(3) MAX. MARKS: 25

COURSE NAME: DESIGN OF STEEL STRUCTURES

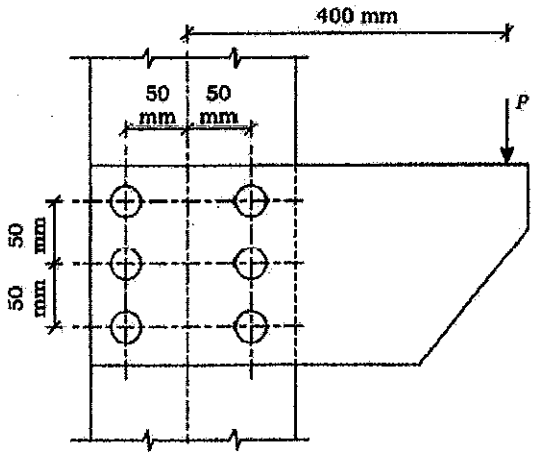
COURSE INSTRUCTORS: Dr. KAUSHAL KUMAR MAX. TIME: 1 Hour 30 Minutes

---

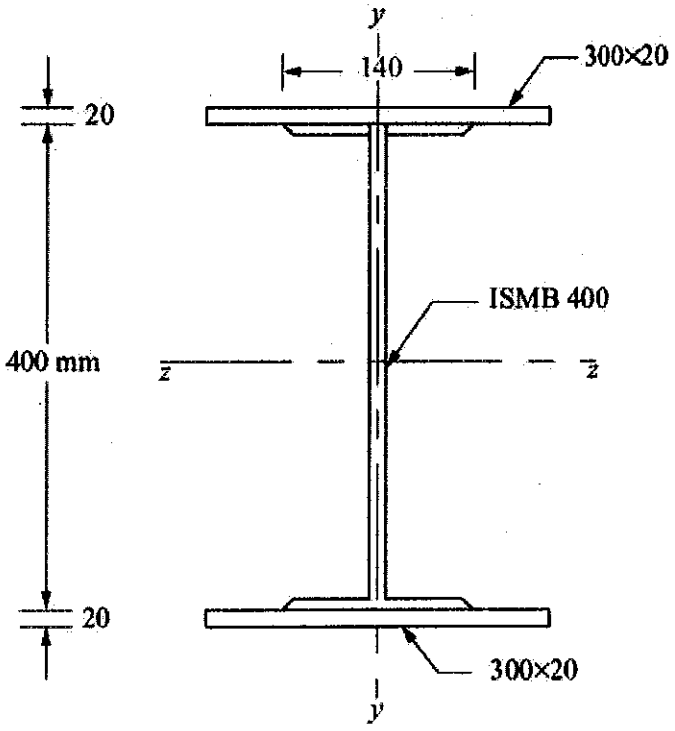
Note: Note: *(a) All questions are compulsory.*

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

(C) IS 800:2007 AND Scientific Calculators are allowed.

Q.No	Question	CO	Marks
Q1	Find the maximum for **P**, the bracket of thickness 10 mm can transmit. Bolts used are M20 ordinary bolt of grade 8.8 	2	6
Q2	A tie member consists of two **ISMC 250**. The channels are connected on either side of a 12 mm thick gusset plate. Design the welded joint to develop the full strength of the tie. However the overlap is to be limited to 400 mm.	3	7
Q3	A single ISA 100x75x10 is used in a tension member with the longer leg connected to a 10 mm thick gusset plate. The connection is made with the help of a lug angle. Design the connection and sketch the bolt details. Use M20 bolts of grade 4.6 having bolt value of 45.27 kN. Section available for lug angle are: (a) ISA 60x60x8 – 896 mm^2, (b) ISA 60x60x10 – 1100 mm^2, (c) ISA 70x70x8 – 1200 mm^2.	3	6

(21)

Q4	Determine the load carrying capacity of the column section shown in Figure below, if it's actual length is 4.5 m. It's one end may be assumed fixed and the other end hinged. The grade of steel is Fe 415, E = 200000 Mpa.  	4	6