Dr. Kaushal

## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT TEST -2 EXAMINATIONS-2022

B.Tech. -VI<sup>th</sup> Semester (Civil)

COURSE CODE: 18B11CE612

MAX. MARKS: 25

COURSE NAME: Design of Steel Structures

COURSE CREDITS: 03

MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory. Marks are indicated against each question in square brackets. IS-800:2000 and IS-808:1989 are allowed. (Sharing of codes is strictly prohibited)

Q1. (a). With the help of the neat diagram, Discuss the failure of Bolts

[2 Marks]

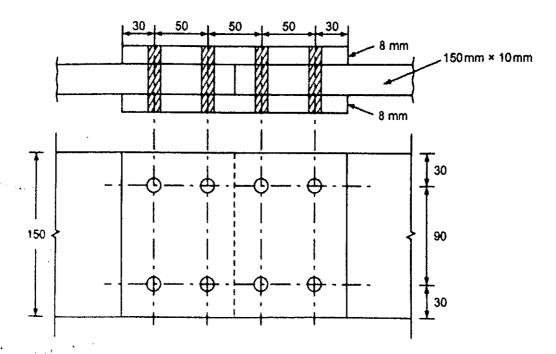
(b). Explain 'Shear Lag' with the help of neat Diagram.

[2 Marks]

(c). Write five merits and three demerits of a welded connection.

[2 Marks]

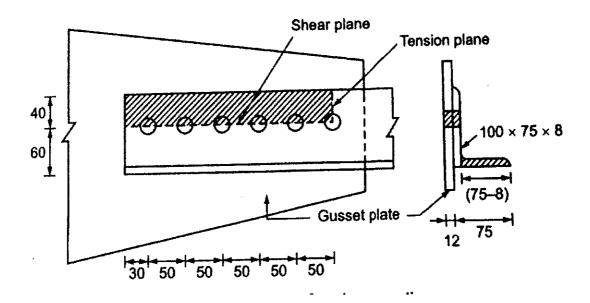
Q2. Find the Efficiency of the Butt joint as shown in figure below. Bolts are of 16 mm diameter of grade 4.6, Cover plates are 8 mm thick. Each plate is of grade 410. [6 Marks]



Q3. A tie member of roof truss consists of two ISA 100x75x8 mm. The angles are connected to either side of a 10 mm thick gusset plate and member is subjected to a factored pull of 450 KN. Design a welded connection (shop welded)
[6 Marks]

Q4. A single unequal angle ISA 100x75x8 mm is connected to a 12 mm thick gusset plate at the ends with 6 numbers of 20 mm diameter bolts to transfer tension as shown in figure. Determine the design tensile strength of the angle if gusset plate is connected to the 100 mm leg. fy = 250 MPa, fu = 410 MPa

[7 Marks]



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