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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MID TERM TEST

SUMMER SEMESTER - JUNE 2018

B.Tech 6th SEM

COURSE CODE: 10B11CE611 MAX. MARKS: 50

COURSE NAME: Design of Steel Structure

COURSE CREDITS: 04 MAX. TIME: 2 Hrs

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of IS:800 is allowed*

Q1. List out the advantages and disadvantages of using steel structures. **(5)**

Q2. Explain in brief various types of loads to be considered in the design of steel structures. **(5)**

Q3. A frame as shown in Fig. 1 is loaded by a dead load of 5kN/m, imposed load of 15kN/m and wind load of 10kN/m. Calculate the greatest values of load for design of frame following load combination. **(7.5)**

i) Imposed load + Dead load

ii) Wind load + Dead load

iii) Imposed load + dead load+ Wind load

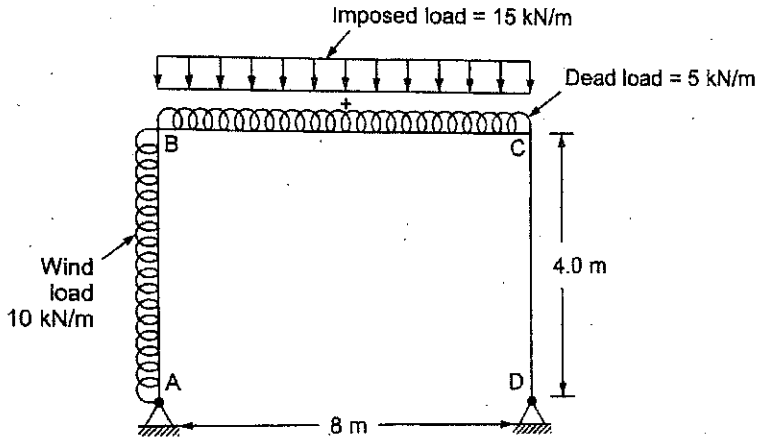

Fig. 1

Q4. How Bolted connections are classified. Discuss. What are the advantages and disadvantages of bolted connection? **(7.5)**

Q5. Two plates 10mm×60mm are connected in a lap joint with 5 M16 bolts of grade 4.6 and 410 grade plates. Calculate the strength of joint as shown in the Fig 2. **(7.5)**

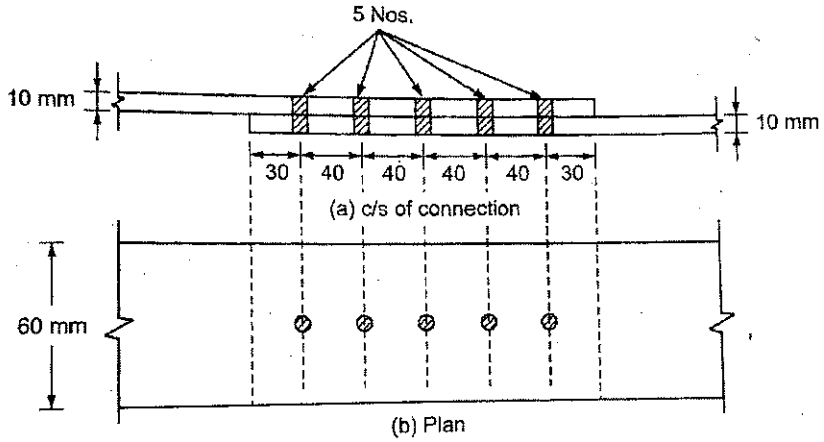

Fig. 2

Q6. Find the efficiency of the butt joint as shown in the Fig 3. Bolts are 16mm diameter of grade 4.6. Cover plates are 8mm thick. **(7.5)**

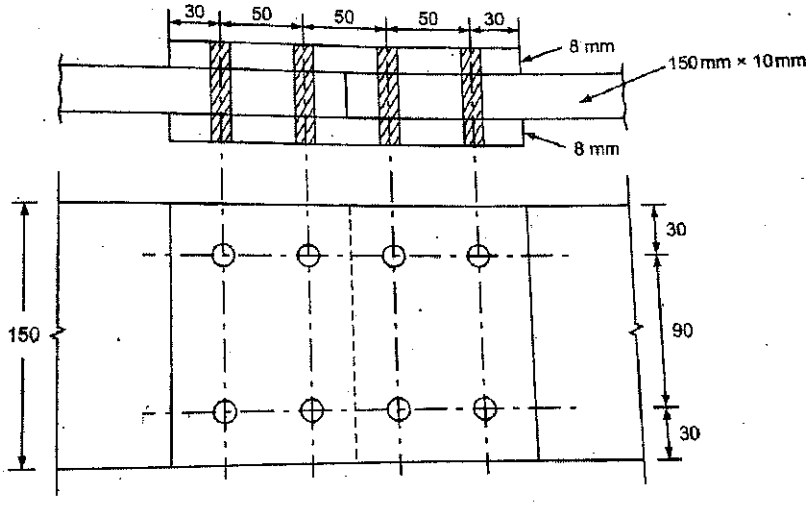

Fig. 3

Q7. Explain the following terms with Figures **(10)**

a) Pitch of bolts
b) Gauge distance
c) Edge distance
d) Staggered distance
e) Tacking bolts