JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

B.Tech-VI Semester (CE)

COURSE CODE (CREDITS): 18B11CE612 (3) MAX. MARKS: 35

COURSE NAME: Design of Steel Structures

COURSE INSTRUCTORS: Mr. Kaushal Kumar MAX. TIME: 2 Hours

Note: *(a)All questions are compulsory. All questions carry equal Marks*

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

(c) IS-800:2007 ans steel table codes are allowed.

Q1. Differentiate between Limit State of Design and Working State of Design.

Q2. Design a Lap joint between plates 100× 8 mm so as to transmit a factored load of 100 kN using black bolts of 12mm diameter and grade 4.6. The plates are made of steel of grade Fe 410.

Q3. A tension member 3 m long carries a factored tensile load of 200 kN. Design a suitable single angle unequal section when connection is made with (i) 20 mm diameter bolts of grade 4.6.

Q4. A tension member carrying a factored tensile load of 180 kN has to convert through a gusset plate of 10 mm thick using 16 mm diameter of ordinary bolt of grade 4.6. The available length of the gusset plate for making connection is 250 mm. Design the member & its connection. Also design the lug angle if required.

Q5. Design a single angle discontinuous strut to carry a factored load of 50 kN. Assume that the distance between its joints is 2 m. Use fy=250 Mpa.

Q6. A cantilever beam of length 4.5 m supports a dead load (including self weight) of 18 kN/m and a live load of 12 kN/m. Assume a bearing length of 100 mm. Design the beam.

Q7. What is gantry girder? Discuss about the maximum load cases for design of gantry girder?

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