

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2018

B-Tech VIth Semester

COURSE CODE: 10B11CE611

MAX. MARKS: 35

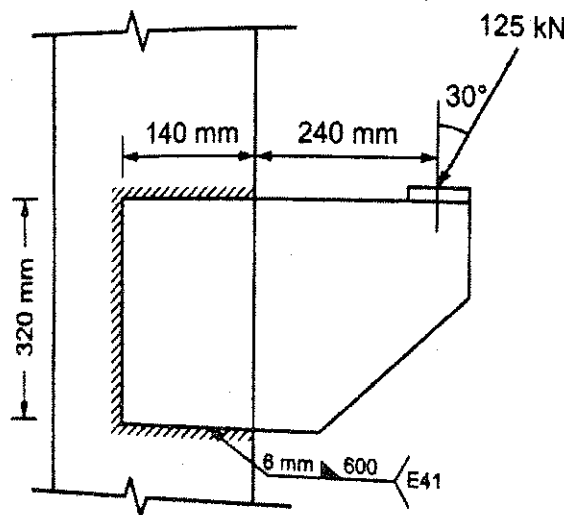
COURSE NAME: Design of Steel Structures

COURSE CREDITS: 4

MAX. TIME: 2 Hrs

Note: (i) All questions are compulsory.**(ii) Carrying of mobile phone during examinations will be treated as case of unfair means.****(iii) IS-800:2000 and IS-808:1989 are allowed. (Sharing of codes is strictly prohibited)**

- Q1.** For a connection as shown in figure. If the load is 125 kN inclined at 30 degree to the vertical in clockwise direction. Check whether the weld is safe. Assume weld is shop controlled.

CO-2 [7 Marks]

- Q2.** The bottom chord tie member of a truss has to withstand a factored tension equal to 480 kN. Design a double angle section for the same. The angles are connected to 10mm thick gussets at the ends. Design the connection detail also. Draw a detailed sketch.

CO-2, CO-3 [6 Marks]

- Q3.** What do you mean by Buckling? Derive the generalised expression for Critical Buckling load in a column.

CO-4 [1+3 Marks]

Roll No.....

Q4. Design a double angle discontinues strut to carry a factored load of 240 KN. Length of strut between o/c interaction = 3.6 m. The strut is subjected to reversal of stress due to load other than wind/ earthquake load. Assume any other data necessary. **CO-4 [6 Marks]**

Q5. What are the various classifications of section in Beam design? Explain Laterally Supported and Laterally Unsupported Beams? Why is 'I-sections' are generally preferred as beam?

CO-5 [6 Marks]

Q6. Design a laterally supported simply supported beam of 4 m span, loaded for a concentrated load of 400 KN at mid span. The load is transferred through base plate of 200 mm length to the support. Design a check for (a) Shear Capacity (b) Design bending strength and (c) check for deflection using *ISMB 400 section* **CO-5 [7 Marks]**

JUIT'S EXAMINATION MARCH 2018