CE-7002 (CBGS)
## B.E. VII Semester
Examination, November 2019
Choice Based Grading System (CBGS)
Structural Design -II (Steel)

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

iii) Use of relevant IS code is permitted.

1. A welded bracket connects a plate to the column flange as shown in figure. Determine the size of the weld if the allowable stress in the weld is 110 N/mm². 　14
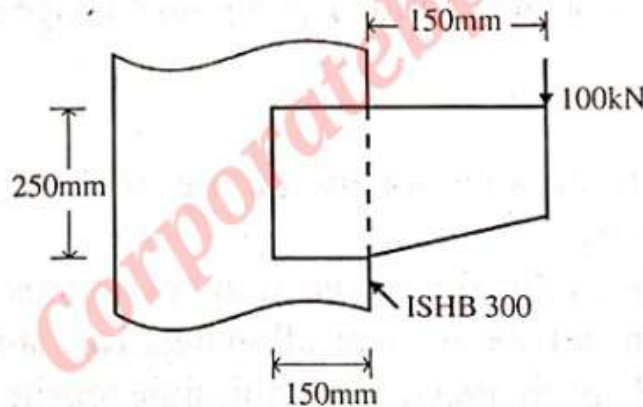
2. Calculate the compressive resistance of a compound column consisting ISMB500 with one cover plate 350×20 mm on each flange and having a length of 5m. Assume that the bottom of column is fixed and top is rotation fixed, translation free. Take Fy = 250 N/mm². 　14

3. Explain the steps involved in the design of gantry girder. 　14

4. Design a column section to support a load of 1000 kN. The section shall consists of four angles. The overall dimensions of the section shall be 250 mm × 250 mm. The column has an effective length of 4m. Take Fy = 250 MPa. 14

5. Draw the schematic diagram showing various components of braced industrial building. 14

6. Design a slab base for a column ISHB 300 @ 577 N/m carrying an axial load of 1200 kN. M20 concrete is to be used for the foundation. Provide welded connection between the column and base plate. 14

7. a) Tensile strength is of secondary importance in most of steel structure. State True or False. Support your answer. 7

   b) What do you mean by formation of plastic Hinge in beams. 7

8. a) What are the reasons for the failure of riveted joints? Explain briefly. 7

   b) Design a lap joint for connection two plates of sizes 15cm × 1cm and 20cm × 1cm allowing a safe shear stress of 1025 kg/cm² in the weld. Permissible tensile stress in the plate = 1500 kg/cm². 7

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