Roll No ....

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**
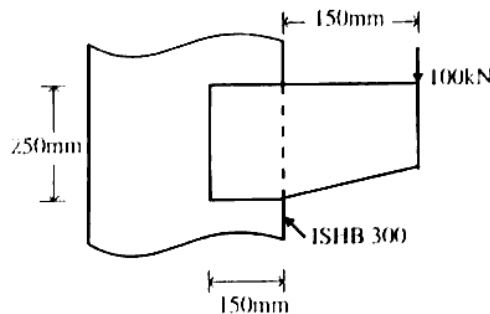
2. Calculate the compressive resistance of a compound column consisting ISMB500 with one cover plate 350×20 mm on each flange and having a length of 5m. Assume that the bottom of column is fixed and top is rotation fixed, translation free. Take Fy = 250 N/mm². **14**

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

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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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