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09ENG6.5

Sixth Semester B. Arch Degree Examination, June/July 2016
Structures – VI

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer any FIVE full questions.***
2. ***Use of IS – 800, SP – 06 Hand Book or Steel Table is permitted.***
3. ***Any Missing data may be assumed suitably.***

1 a. Explain types of loads and their combination. **(05 Marks)**
b. Explain classes of sections plastic compact and semi compact. **(05 Marks)**
c. Design bolted connection for the joint shown. Use M_{16}, grade 5.6 black bolts. Use grade of the section Fe410. Ref. Fig Q1 (c) Draw neat sketch. **(10 Marks)**

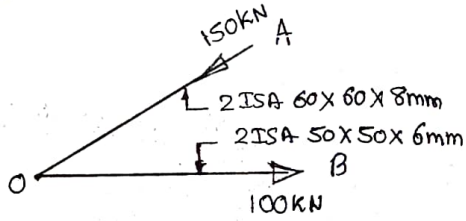

Fig. Q1(c)

2 a. Explain Fillet and Butt weld. **(05 Marks)**
b. List Advantages of welded connection over bolted connection. **(05 Marks)**
c. Design a welded connection for a angle ISA 80 × 80 × 80mm subjected to 150kN force. **(10 Marks)**

3 Design a tension member using single angle section to carry a force of 100kN use M_{16} grade 5.6 black bolts. **(20 Marks)**

4 Design a compression member (strut) using single angle section to carry a load of 100kN. The length (effective length) of the member is 1.5m. Design suitable welded connection. **(20 Marks)**

5 Design a built up column using double channel back to back to carry a load of 1000kN. The effective height of the column is 4m. Also design suitable lacing system. Draw neat sketch. **(20 Marks)**

6 Design a slab base for the column ISHB – 400 to carry a load of 1000kN. Use M_{20} concrete for the concrete base. Also design concrete base if SBC of soil is 200kN/m^2. Design welded connection between column and slab base. Draw neat sketch. **(20 Marks)**

7 Design a simply supported laterally supported beam of span 5m and subjected to a load of 30kN/m (live load). Check the beam for M.R, shear and deflection. Use Rolled steel beams only. **(20 Marks)**

8 a. Explain Fire protection for steel structures. **(10 Marks)**
b. Explain the design procedure for Bolted bracket connection. **(10 Marks)**

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