

Paper Id: 181290

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**BARCH**  
**(SEM VI) THEORY EXAMINATION 2018-19**  
**ARCHITECTURAL STRUCTURES VI**

Time: 3 Hours

Total Marks: 50

**Notes:**

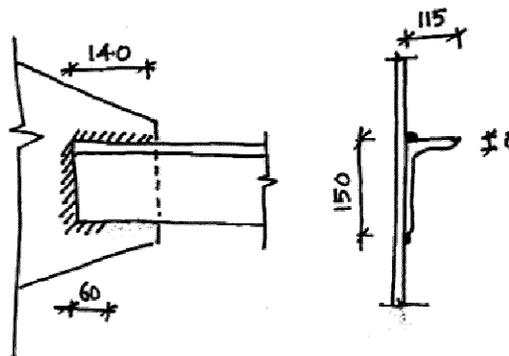
- Attempt all Sections.
- Required IS Code data is already given.
- Assume any missing data suitably.

**SECTION – A**Q1) Answer the following term in brief: (10X1=10)

- a) Define minimum eccentricity for design of RCC column.
- b) What is effective height of column if (i) both end fixed (ii) both are hinged. ?
- c) What are the different types of foundation?
- d) Explain pile foundation.
- e) What are the different types of retaining wall?
- f) Draw reinforcement in a cantilever retaining wall.
- g) Define strength of riveted joint.
- h) Define design strength of welded joints.
- i) Define slenderness ratio.
- j) Enumerate various components of plate girder in steel structures.

**SECTION – B**Q2) Attempt any **five** questions: (5x5=25)

- a) Explain different assumptions for analysis and design of RCC column.
- b) Write different steps for the design of short RCC column under pure axial load.
- c) Explain different types of foundation and detailing of its reinforcement.
- d) Explain classification of piles and their applications.
- e) Explain different safety checks used in design of cantilever retaining wall.
- f) Explain different types of riveted connections with diagram.
- g) Explain grillage foundation and its components and uses in building industry.
- h) Calculate the tensile strength of an angle section ISA 150X115X8 mm of fe410 grade of steel connected with the gusset plate as shown in figure



## SECTION – C

Q3) Attempt any **two** questions.

(2X7.5=15)

- a) Design a short column square in section, to carry an axial load of 2000 KN using Fe 415 grade steel and M20 mix.
- b) Calculate the design compressive load for a column ISHB 350 @ 710.2N/m, 3.5 m high. The column is restrained in direction and position at both the ends. Use steel of grade Fe 410. The ISHB 350, Area=93.21 cm<sup>2</sup>,  $r_z = 14.93$  cm,  $r_y = 5.43$ cm thickness of flange 11.6mm, thickness of web=8.3mm

d/r	f <sub>cd</sub> (MPa)
30	216
40	206
50	194
60	181

- c) Explain various types of roof trusses and nomenclature of its members.