

**S. Y. B.ARCH. SEM – IV (2010 COURSE) : SUMMER - 2018**  
**SUBJECT: THEORY OF STRUCTURES & BUILDING MATERIALS-IV**

Day : **Thursday**  
Date : **03/05/2018**

Time: **02.00 PM TO 05.00 PM**  
Max. Marks: 100.

**S-2018-3321**

N.B.:

- 1) Attempt any **THREE** from **Section –I.**
- 2) Attempt any **FOUR** from **Section –II.**
- 3) Assume suitable data if necessary.
- 4) Figure to the write indicate full marks.
- 5) Answer to both section should be written in **SEPARATE** answer books.
- 6) Draw illustrative sketches wherever necessary.

**SECTION-I**

- Q.1** a) Give I.S. Code provision for timber beam. (05)
- b) Compare rivet joint and welded joint. (05)
- c) Explain analysis of compression member in steel structure. (05)
- d) Explain analysis of fixed beam. (05)
- Q.2** A timber beam is simply supported. Its span is 12 m. It carries u.d.l. of 15 kN/m and point load of 10 kN at 4.5 m from left support. If stress in timber not to exceed 8 N/mm<sup>2</sup>. Design a suitable section making depth twice the width. (20)
- Q.3** An angle ISA 50 x 30 x 6 mm is used as a tension member with its longer leg is connected by 16 mm diameter rivets. Calculate its strength. (20)
- Q.4** Design a suitable I section for column to carry an axial load of 800kN. The column is 4.5 m in height with load. Both ends are hinged. How much the axial load the column will take if its effective height about x-x axis is 4 m and about y-y axis is 2.5 m (20)

**SECTION-II**

- Q.5** Explain stabilized earth block with its advantages, process of manufacture and limitations. (10)
- Q.6** Write note on concrete debri block. (10)
- Q.7** Explain various defects found in steel. (10)
- Q.8** Explain uses of aluminum in building and write a brief note on manufacture of aluminum. (10)
- Q.9** Write note on fly ash bricks. What are its environmental benefits? (10)

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