No. of Printed Pages : 03 **Roll No. .....**

2012

B. Tech. EXAMINATION, May 2019

(Second Semester)

(Old Scheme) (Re-appear Only)

STRUCTURAL DESIGN-II

AR106G

Time : 3 *Hours*] [*Maximum Marks :* 50

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Assume any data if necessary. Use of IS : 1905 and IS : 883 is allowd.

Unit I

1. Draw and explain the stresses developed in a beam subjected to pure bending. **10**

2. Explain Hooke's Law. Draw stress-strain curve for mild steel. **10**

Unit II

3. Give the classification of timber. Draw and explain various defects and knots formed in timber. **10**

4. Explain the properties of structural timber. Also explain the permissible stresses in timber. **10**

Unit III

5. A beam made using Sal wood has dimensions of 200 mm depth and 150 mm width. The beam is located at an inside location. Calculate the strength of the beam. **10**

6. Design a timber beam using Sal wood over a span of 4 m supporting the roof. The uniformly distributed load on the beam from roof is 10 kN/m. The superimposed load on the beam is 5 kN/m and finishing load on beam is 0.75 kN/m. Take thickness of support on each side as 150 mm. **10**

Unit IV

7. A room of dimension 4 m × 5 m is to be supported on load bearing walls. The height of wall is 3 m. Total load coming on the wall is 200 kN/m. Design the wall with First class bricks in CM 1 : 5. **10**

8. Design a circular column for axial load of 250 kN using mango wood. The height of column is 3 m high and used in inside location. **10**