M. Tech 2nd Semester Civil Engg. Specialization in Structure Design Examination,

May–2015

STABILITY OF STRUCTURES

Paper–MTSD–202

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *Attempt any **five** questions. All questions carry equal marks.*

Assume any data if missing in the question paper.

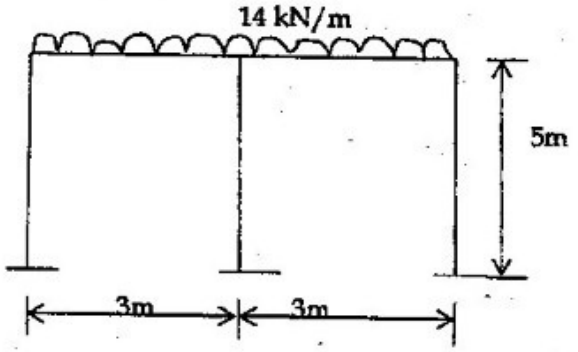
1. Derive the expression for calculating the Euler's buckling load for a column with one fixed ends and other is pinned. 20

2. What are the assumptions that are considered in calculating the buckling load ? Draw a diagram showing the neutral equilibrium. 20

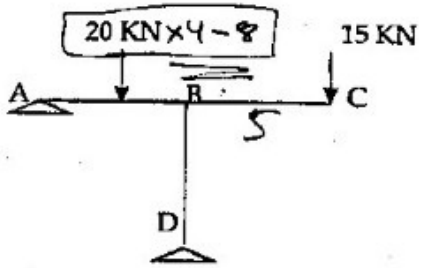
3. What is the difference between Rayleigh Ritz method and Galerkin method ? 20

4. Explain the concept of loss of stability of beam web due to combined action of normal and shearing stresses along with diagram. 20

5. Analyse the rigid two bay symmetrical frames shown in figure by slope deflection method. EI is constant for all members of the frame. 20



6. Analyse the following frame : AB = 7 m; BC = 5 m; BD = 4 m. The point loads of 15 KN are acting at centre of AB and 30 KN at end C. 20



7. Explain all the critical loads on plate for various boundary conditions in detail. 20

8. Derive the expression for the buckling of uniform compressed plate. 20

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