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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech. (Structural Design) (2016 & Onwards) (Sem.-2)

STABILITY OF STRUCTURES

Subject Code : MTSD-202

Paper ID : [74291]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT Questions.
2. Each question carries TWENTY marks.

1.
 - a) Explain 'Lateral Buckling' in Beams and performance of the beams subjected to lateral buckling.
 - b) Explain the main difference between torsion and flexural buckling with appropriate example.
2.
 - a) Explain the concept of stability of a structure. Explain the concept with reference to the equilibrium condition.
 - b) Explain warping displacements under pure torsion.
3.
 - a) Explain the non uniform torsion buckling of thin walled members of open cross-section.
 - b) Explain the behavior of member of thin walled open cross-section subjected to combined torsion & flexure.
4.
 - a) Differentiate between Elastic buckling & Inelastic buckling of columns with neat sketches.
 - b) What are the merits of Energy method?
5. Derive the governing moment equilibrium equation of buckling of a thin plate.
6. Write a short note on :
 - a) Inelastic in plane buckling of column.
 - b) Calculate torsional buckling load of I section column under axial load.
7.
 - a) Explain the inelastic behavior of column with built in ends subjected to axial load.
 - b) Write down the applications of trigonometric series.
8.
 - a) Explain the modes of buckling of portal frames.
 - b) Derive the differential equation that governs beam columns subjected to point load.