Roll No.

Total No. of Pages: 01

Total No. of Questions: 08

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

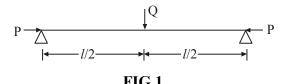
STABILITY OF STRUCTURES

Subject Code: MTSD-202 M.Code: 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 the concept of stability of a structure. Explain the concept with reference to the equilibrium condition.
 - (b) Explain warping displacements under pure torsion.
- 2. Describe the Dynamic approach for column buckling with an example.
- 3. Derive the higher order governing equation for stability of columns. Hence analyze the column with one end clamped and other hinged boundary condition.
- 4. (a) Differentiate between Elastic buckling & Inelastic buckling of columns with neat sketches.
 - (b) What are the merits of Energy method?
- 5. A beam column subjected to a uniformly distributed load and an axial load is shown in figure below. Obtain the expression for the maximum deflection & Maximum moment.



- 6. (a) With suitable sketches discuss the different modes of buckling of portal frames.
 - (b) Explain the equilibrium approach for the buckling analysis of beam columns with example.
- 7. Derive the governing moment equilibrium equation of buckling of a thin plate.
- 8. Write a short note on:
 - (a) Inelastic in plane buckling of column
 - (b) Calculate torsional buckling load of I section column under axial load.

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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