H.T.No. | | | | | | | | | | |

Code No: CE2904 **GEC-R17**

M. Tech I Semester Regular Examinations, February 2018

STABILITY OF STRUCTURES

(Structural Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: Answer Any **FIVE** Questions. All Questions Carry Equal Marks.

5 × 12 = 60M

1. Find the maximum bending moment of a simply supported beam-column of span *'l'* subjected to a concentrated load '*W'* at its mid-span and an axial compressive load *'P*'. (12M)
2. Derive the expression for buckling of a bar with change in cross section. (12M)
3. a) Explain the various assumptions made in the double modulus theory. (4M)
   b) Derive an expression for critical load of cantilever column under a constant load 'P' using Rayleigh – Ritz method. (8M)
4. a) Explain Modes of buckling of portal frames. (6M)
   b) Determine the limiting values for the symmetric buckling load for a frame. (6M)
5. a) Explain 'Inelastic buckling' and its importance. (4M)
   b) Write short notes on Tangent Modulus Theory. (8M)
6. a) Explain 'Lateral buckling' in beams and performance of the rectangular beam subjected to lateral buckling. (8M)
   b) Explain the main difference between torsional and flexural buckling with appropriate examples. (4M)
7. Write short notes on
   a) Uniform torsion (6M)
   b) Critical load of the Euler Column (6M)
8. Determine the lateral buckling moment of a simply supported beam of I section subjected to pure bending. (12M)

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