

Code No: H8703/R13

M. Tech. II Semester Regular/ Supplementary Examinations, July-2016

STABILITY OF STRUCTURES

(Structural Engineering)

Time: 3 Hours

Max. Marks: 60

Answer any FIVE Questions
All Questions Carry Equal Marks

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 '. 12
2. Derive the expression for buckling of a bar under distributed axial load from first principles. 12
3.
 - a Explain the various assumptions made in the double modulus theory. 4
 - b Explain the inelastic buckling of a column with built-in ends subjected to axial load. 8
4.
 - a Explain the non-uniform torsional buckling of thin walled members of open cross-section. 6
 - b Explain the behavior of member of thin-walled open cross-section subjected to combined torsion and flexure. 6
5. Determine the lateral buckling moment of resistance of a beam of I-section subjected to pure bending. 12
6.
 - a Determine the buckling load of an axially loaded fixed-free column using Rayleigh-Ritz method. 8
 - b Explain the effect of initial curvature on the buckling of columns. 4
7.
 - a Explain the orthogonal relation of buckling problems. 6
 - b Explain the factors influencing the lateral buckling of beams. 6
8. Explain the following:
 - a Inelastic buckling of columns. 4
 - b Mathematical treatment of stability problems 4
 - c Effect of shear on critical load of columns 4
